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Gleanings in Free Culture

VOL. XLII. SEPT. 15, 1914, NO. 18.

ANSWERS TO 150 QUESTIONS

By the Editor of
GLEANINGS IN BEE CULTURE

The first fifty or sixty questions are those commonly asked by beginners. The remainder are queries that naturally arise in the minds of more experienced beekeepers. The last hundred questions have been asked by GLEANINGS subscribers, and are put in permanent form in this way because they cover those points which so often perplex beekeepers.

The index enables one to find at once answers which will help him to solve many of the puzzles connected with the care of bees.

The five questions given below have been taken at random from the book.

How can I tell a queen-cell from all the rest?

What is the best way to introduce a valuable queen?

What must be planted for bees to work upon?

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

In comparison, all points considered, for comb honey, what advantage if any has the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ over the $4 \times 5 \times 1\frac{3}{8}$ section?

Send for the book as premium when you renew your subscription to GLEANINGS, and read the answers to these questions and the other 145.

A copy of "Answers to 150 Questions" and "Gleanings in Bee Culture" one year	Both for \$1.00
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Inventory Season Is Here

I am making up my inventory of Root's Bee Supplies on hand at my Syracuse warehouse, and my stock orders for 1915 goods will be sent to the factory soon. If any customer or any beekeeper of New York State desires special goods I shall be pleased to send in the order to come with one of my cars to Syracuse.

I take this opportunity to thank my customers for their liberal patronage the past season, and solicit a continuance of the same.

September discount, 7 per cent from catalog prices;
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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than 12 ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—No. 1 and fancy new white comb honey is quoted at 16 to 17; fancy white extracted, 11, 60-lb. cans. Beeswax, 30.
Boston, Sept. 5. BLAKE-LET CO.

ZANESVILLE.—The demand for honey on this market is hardly satisfactory. Stocks are low as yet. Prices are unsettled and largely arbitrary, with a little upward tendency. Producers receive for beeswax 32 to 34 cts. cash.
Zanesville, Sept. 7. EDMUND W. PEIRCE.

Honey reports continued on page 5.

PERFECTION IN WAX RENDERING

has been reached by our process. Ship us your OLD COMB AND CAPPINGS, and secure highest returns. . . . Write for prices and full information.

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64-page Catalog

Our 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans, too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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ST. LOUIS.—We are still quoting southern extracted bright-amber honey in barrels at 5 to 5½; in cans, at 5½ to 6; dark, ½ to 1 ct. less; comb honey, fancy clover, 14 to 15; light amber, 12 to 14; broken and leaky, 7 to 8. Comb honey by the case, fancy white clover, \$3.00 to \$3.25; light amber, \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax, prime, brings 32; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, Sept. 7.

CHICAGO.—The market is cleaned up well on all carried-over comb, so that at this writing new honey is selling at an average price of 16 cts. per lb. for the best grades of white comb in the 1-lb. sections, or thereabout. Lots that have come forward have been closed out quite rapidly, and we look for this price to be maintained. That which is not choice to fancy brings from 1 to 2 cts. per lb. less according to kind and condition. The white grades of extracted bring from 7 to 9, depending upon quality, kind, and package; ambers, from 6 to 8. Beeswax is steady at 35.

Chicago, Sept. 3.

R. A. BURNETT & Co.

NEW YORK.—There is very little new comb honey arriving as yet; and, owing to the war, there is no demand to speak of. In a small way white honey is selling from 13 to 16, according to quality and style of package; lower grades at from 11 to 12. There is no buckwheat in the market as yet. As to extracted, we have never seen the market in such condition at it is at present. Large quantities of West Indian honey are coming in here, and are offered and sold at all prices, and we are advising Southern beekeepers to write us before making any shipments, as we may not be able to realize prices that they expect us to get, and we do not wish them to be dissatisfied afterward.

New York, Sept. 4. HILDRETH & SEGELKEN.

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E.R. ROOT, Vice-Pres.
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The hive of bees you sent me May 20 has given me two nuclei and one active natural swarm, and the bees are still working with all their might.
Madison, N. J., Aug. 26. OLIVER ALLEN.

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I enclose \$1.50 for GLEANINGS and Terry's book. This makes the fourth book with GLEANINGS besides what I have bought. I get them to sell and give away or lend where I think they will do the most good. The book has been a great benefit to me financially as well as physically. Since reading it three years ago I have had no doctor's bills to pay, and have been able to do more work and keep more bees—have paid off the mortgage on my place, and have some money left. For a man 65 years of age I think I am doing pretty well.
Warsaw, N. Y., March 21. W. W. SHERWIN.

Gleanings in Bee Culture

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Emile Bondonneau

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- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
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- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oft-times perplexing matter. Price 10 cents.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
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- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts encouraging the "city bound" man or woman with the "back-to-the-land" longing. Free.
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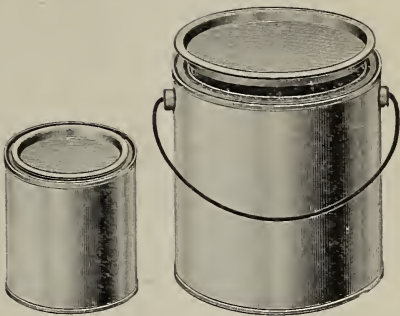
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EDITORIALS

Our Cover Picture

OUR cover picture for this issue shows a bit of beautiful mountain scenery as described by Harold Hovind, page 722. Mr. Hovind, as we can see by his letters, is a natural-born teacher—a teacher who feels like a father toward his pupils. Living in such a country, is it any wonder that there are so many whose souls reflect the grandeur of the magnificent scenery? May the memory of the old Norse vikings be ever fresh!

Honey-bees as Pollinators

THE above is the title of Bulletin No. 8 of the State Board of Agriculture of Massachusetts, that appears also to be a part of the 61st annual report of the Massachusetts State Board of Agriculture. It covers the whole subject very thoroughly, and in a style that any person without any scientific knowledge of botany can readily understand.

Such a bulletin would be of immense help if handed out to fruit-growers who are ignorant of the valuable work done by bees, or who persist in spraying trees while in bloom.

The Net-weight Law as it Applies to Comb Honey

FROM the United States Department of Agriculture, Bureau of Chemistry, there is issued a monthly, giving copies of letters from Department heads to the public. In the issue for June there is a letter signed by A. S. Mitchell, Secretary of the Committee of Regulations, Net-weight and Volume Law, that has to do with comb honey. While we have already covered the point, the following statement is of value because it comes from high authority:

The net weight of comb honey is considered to be the weight of the honey and comb, exclusive of the wooden section. It is believed that the tare weight of these sections is easily ascertained, and that the filled sections can be readily sorted into approximately similar weights which may be marked in ac-

cordance with paragraph *h* of Food Inspection Decision No. 154.

The individual units must be marked, and the shipping-case may be if desired. The marking should be done previous to their introduction into interstate commerce.

While the regulations do not prescribe the manner of marking, as to whether a rubber stamp may be used, the law requires that the statement shall be plain and conspicuous. Stamping by means of aniline ink is frequently illegible, owing to failure to print or to the running of the ink. If such a stamp is used, care should be taken to make the statement plain and conspicuous, as required by the act.

A. S. MITCHELL.

Plain Sections of the Same Capacity Lighter in Weight than Beeway for Same Weight of Honey

ATTENTION is called to the fact that the ordinary standard plain section 4×5 or $4\frac{1}{4}$ square weighs approximately $\frac{3}{4}$ oz., while the beeway sections, $4\frac{1}{4}$ square, weigh almost an even ounce. It would be perfectly legitimate for the producer of plain sections, in making up his minimum net weight, to deduct $\frac{3}{4}$ ounce in place of a full ounce. His minimum net weight then should stand about $\frac{1}{4}$ ounce more than the same size of section with the beeway.

Reports of Honey-dew Honey

THERE have been a good many scattering reports of honey-dew, although not by any means as many as during the season of 1908, when so many beekeepers over the country got little else than honey-dew.

We have learned of one beekeeper who has secured eight or ten tons of honey-dew honey, and who wants to know what he can do with it. Of course, it cannot be sold except as honey-dew honey. It occurs to us that there are a number of manufacturing concerns using cheap syrup, New Orleans molasses, etc., for sweetening, and it would seem as though a good grade of honey-dew honey should be better than most of the syrups thus used. For instance, manufacturers of stock food often use large quantities of syrup, New Orleans molasses, etc.

For manufacturing purposes it would seem as though honey-dew might fill the bill very satisfactorily.

Brown Sugar v. White Sugar for Feeding Bees

QUITE a number are asking whether, on account of the high cost of granulated sugar, they could not feed *brown* sugar instead. The question is doubtless based on the assumption that *brown* sugar can be had cheaper or at the old price; but when one sugar is advanced, the other goes up also. Granulated white sugar costs only a fraction of a cent more than the brown, and it will be far better in every way; for while brown sugar *can* be used for winter feeding, yet even if the white cost a cent a pound more it would still be cheaper, because it will go further. Moreover, brown sugar has slightly more of a tendency to cause dysentery when conditions are favorable.

Encouraging the Use of Sweets; or, Honey as an Excellent Substitute for Alcohol

THE great steel interests of Pittsburg are doing all they can to encourage the use of sweets, including honey, as a substitute for alcoholic drinks. They have recently, we understand, purchased a paper printed in the language that their men can understand, and through the means of that paper they are encouraging them to use all kinds of sweets and soft drinks in place of that deadly and destructive mind and soul destroying thing, alcohol. It is to be presumed that these great interests are not animated nor moved by any religious or moral incentive; but practically all of these and other industrial concerns where there is the open saloon suffer from the condition of their force of men on Monday morning, or the day after, as the case may be. Large numbers of their employees go into the saloons Saturday night after getting their pay, and a big part of it, if not *all* of it, is spent for something worse than nothing. The result is, the men are drunk from Saturday night until practically Tuesday morning. Thousands of them fail to show up at their posts; and the steel-men, from a purely economic point of view, have discovered that it is a good thing to encourage the use of sweets as a substitute, and at the same time discourage the use of all alcoholic drinks.

It is a good sign that better days are coming; but right now beemen should get busy. Most of them are temperance men, and this is a good time to take advantage of

the situation and sell honey to the workmen in these shops and steel-mills. Explain to them that it is a food—one that will satisfy a natural craving for sweets. By so doing you will remove an abnormal desire for alcoholic drinks.

The Present Status of Swamp Bee-keeping in Medina and Vicinity

WE now have seven apiaries located on the edges of some of the big swamps east, southeast, and south of Medina. Two are located in the vicinity of Hudson, where there are over a thousand acres of swamp bee pasturage. One is located near the neighboring city of Barberton; one over near Copley, fourteen miles east of here; another near Sharon, eight miles, and two more south of Medina, near the end of Chippewa Lake, six and eight miles. The bees are building up very satisfactorily, and the increase is something phenomenal. For example, a little over three weeks ago we located near the Hudson swamp a yard of 60 three-frame nuclei. These nuclei were placed in ordinary ten-frame dovetailed hives, and the empty space filled out with combs or foundation. A few days ago we were over to visit this yard, and were surprised to find brood and bees in six or seven of the combs in many colonies where there was a young vigorous queen. A similar increase has been made at other yards. In some cases colonies have been shaken from old combs built crosswise and put on frames of foundation, and now we have in their place colonies in ten-frame Langstroth hives, every thing new and first-class.

On the 1st of September, Mr. A. J. Halter, who is managing our Hudson bees, telephoned over, saying he desired to have us come over and see how our bees were working. On visiting three of the yards we found the bees flying just as if they were working on the basswoods at home, and the honey, too, was white and of good flavor. Mr. Halter was a little uncertain as to what the source might be. After going through the swamp we concluded the main source was from a flower that looked very much like Jerusalem artichoke, sometimes called earth-apple, or Canada potato (*Helianthus tuberosus*). There are other flora that bees work on to some extent, such as goldenrod, wild buckwheat, black-eyed Susan, and some sunflowers (*Helianthus giganteus*); quantities of beggartick, or stickights, botanically known as *Bidens frondosa*, Spanish needle (*Coreopsis tinctoria*), and ironweed (*Vernonia noveboracensis*.) There were also other

kinds of *Helianti*. All in all, there was a great variety of honey-plants that Mr. Halter thought would keep the bees busy up to severe frosts.

All of this increase has been made in the face of eight-cent sugar, scarcely a pound of which we have fed.

That reminds us that there is one yard where we are feeding Porto Rican honey. because it is cheaper than sugar. As this yard is located where there is no fall or swamp pasturage we decided to try out the proposition of feeding cheap honey, and putting the cost of this against the expense of trucking the other bees back and forth to the swamps. Porto Rico has never had foul brood; and after it came into the possession of the United States a very strict quarantine was established, so we think we are reasonably safe in the belief that this honey will cause no bee disease. More anon.

Will Cane Sugar on Account of the European War, Rise to 15 Cents a Pound?

WE are told that of the sixteen million tons of cane sugar now produced in the entire world, more than half comes from the nations at war in Europe. These nations will not now be able to harvest their beet crops on account of all the men being engaged in war. The United States, including her possessions, produces but little more than half of the sugar consumed in her own borders. If the United States consumes twice as much sugar as she produces, and if Europe under normal conditions produces half the sugar of the entire world, and this half is now cut off, it can be seen that there will necessarily be a great scarcity of cane sugar, and the price is bound to rise according to the simple law of supply and demand, no matter what the Department of Justice at Washington may say about it. It has been estimated that cane sugar will go up to 15 cts. a pound if the war continues for any length of time; and at this writing, Sept. 4, it does not seem as if it would stop very soon. If sugar goes to 15 cts. a pound, naturally enough honey will have to be used as a substitute in many cases; and if that is true the price is sure to rise.

As we pointed out in our last issue, the South American and West Indian honeys are coming into the United States at any old price. If sugar goes up to the point of 15 cents, Europe will substitute honey for it. It will hardly take glucose on account of its low sweetening power as compared with sugar or honey.

No one knows how long the war will

continue. No one can accurately predict just how long the high price of sugar will prevail, whether it will advance, nor how much the advance in sugar will tend to stiffen the price of honey. But the presumption is that both will rise somewhat; and the housewife, if she has not canned all of her peaches, may substitute a cheap honey. If cane sugar should go up to 15 cents, she could well afford to use even the table extracted honey for canning.

The logic of the situation seems to indicate that beekeepers everywhere in the country should get busy in pushing the sale of honey for use in the home, such as sweetening coffee and tea, and for cooking and baking. If we can once get honey introduced into homes for domestic purposes its use will continue to a great extent, even when conditions have resumed their normal.

Later.—*The American Grocer*, one of the greatest authorities in the United States on foods, gives in its last issue a lengthy discussion on the production of sugar. It confirms all we have said above, and then adds this paragraph in the way of a summary:

The march of armies over the beet-fields of Russia, Germany, Austria-Hungary, France; the withdrawal of millions of men from industries, will, if long continued, so diminish the world's supply as to make it possible that refined sugar may advance to prices ruling here after the civil war, when hard sugars sold above 16 cents a pound.

In the mean time we learn from a candyman that the wholesale price on candy is advancing on account of the rise in price of sugar. Candy is a luxury; and if that can advance, honey, a luxury and a real and necessary food, should advance also. If sugar should go to 15 or 16 cents, all other sweets will necessarily rise.

Destruction of Germs of Infectious Bee Diseases by Heat

THIS is the title of Bulletin No. 92, by Dr. G. F. White, expert engaged in the investigation of bee diseases, of the United States Department of Agriculture, Bureau of Entomology. This bulletin will have more than ordinary interest and value at the present time in view of the high price of sugar and the possible and probable substitution of cheap honey for fall or winter feeding. Of course it is unsafe to feed any honey coming from an unknown source, on account of the danger of transmitting foul brood; but all such honeys will be rendered safe by boiling for a certain length of time. From page 8 of this bulletin we quote the general summary:

The results of these experiments show that when they are maintained for ten minutes the minimum

temperatures that can be used for destroying the germs of the four bee diseases now known to be infectious are as follows:

1. The minimum temperature for European foul brood lies somewhere between 60 degrees C. (140 degrees F.) and 65 C. (149 F.), being approximately 63 C. (145.4 F.).

2. The minimum temperature for American foul brood lies somewhere between 90 degrees C. (194 degrees F.) and 100 C. (212 F.), being probably less than 98 C. (208.4 F.).

3. The minimum temperature for sac brood lies somewhere between 55 degrees C. (131 F.) and 60 C. (140 F.), being approximately 58 C. (136.4 F.).

4. The minimum temperature for nosema disease lies between 55 degrees C. (131 F.) and 60 C. (140 F.), being approximately 57 C. (134.6 F.).

It will be noted, therefore, that 63 degrees C. (145.4 degrees F.) for European foul brood, 98 C. (208.4 F.) for American foul brood, 58 C. (136.4 F.) for sac brood, and 57 C. (134.6 F.) for nosema disease are the approximate minimum temperatures at which the germs of these diseases, respectively, are destroyed. Since there are varying factors in experiments of this nature that tend to produce slight variations in results, these temperatures are referred to as being approximate. It is probable that future experiments may cause slight changes to be made in these conclusions. Nothing more than a comparatively slight variation is to be expected, however. In practice the beekeeper, in destroying these germs by heating, will naturally use a quantity of heat somewhat in excess of the minimum amount that is absolutely necessary.

Some generalizations may now be made which will be of interest to the beekeeper. The melting-pot of beeswax is between 62 degrees C. (143.6 degrees F.) and 64 C. (147.2 F.), inclusive. It will be observed that this same temperature in ten minutes will destroy the germ causing European foul brood, and that it is about 10 degrees F. above that which will destroy the germs of sac brood and nosema disease. A further interesting generalization may be made concerning the heating of honey. Honey when heated to 160 degrees F. reaches a temperature 15 degrees F. above the temperature necessary to destroy the germ of European foul brood, and about 25 degrees F. above the temperature that will destroy the infecting agents of sac brood and nosema disease. The infecting agents of these three diseases of the bee, therefore, will be destroyed when the temperature of 160 degrees F. is used in the commercial handling of honey. Finally, it is believed that the results of this work on the thermal death-point of the viruses of the bee diseases will be directly applicable to the control of these diseases.

From the last paragraph it would appear that the melting-point of wax applied only 10 minutes would not be sufficient to kill the germs of American foul brood. As a matter of fact, all beeswax that is used in foundation goes through not less than three separate heatings; and while the temperature is probably never up to 212 (the boiling-point of water), yet the separate heatings and prolonged periods of heat are sufficient to kill all the germs. So far as we know, no case of foul brood has ever been transmitted in foundation.

Speaking of European foul brood, that disease can be easily killed by a temperature of melting wax if continued for ten minutes. But the temperature at which beeswax is ordinarily melted when refined is from 180

to 190 F.; and according to Dr. White a temperature of less than 208 F., if applied ten minutes, would do the work. But the ordinary beeswax is kept at 180 to 190 for not less than an hour. The steam is turned off, and the wax slowly cools for 24 hours.

The ordinary foundation-factory buys its wax in all kinds of shapes and sizes. Some of the cakes are dark, a few of them are almost black, and practically all are off color, and have to be clarified. All of these cakes are put into a large tank holding not less than ten barrels. About a quarter of this bulk is taken up with water. This is heated by means of a jet of live steam, bringing the temperature up to 190 F. The whole mass is kept in a boil for an hour or two, or until it is thoroughly mixed. It is then allowed to stand for 24 hours, gradually cooling. The object of this is to permit all particles of dirt and general foreign matter to settle into the water while the clear wax rises to the top. Just before it comes to a solid state, or when it can still be poured, about 24 hours after turning off the steam, the wax on top is drained off into large pails, and then allowed to cool.

After the wax has been refined and clarified it has to be melted again on hot steam-pipes before it can be sheeted; so that, all told, practically all the beeswax before it goes back to the beekeeper has been subjected to three different heatings, covering a total period of 30 hours. This would kill any thing.

This bulletin rather gives us assurance that the ordinary bottled honey that has been heated to prevent granulation will be rendered free from the germs of European foul brood, and possibly American, although this latter is by no means certain. Ordinary honey for bottling is heated to a temperature of 160 degrees at two different times. In all probability the honey is granulated by the time it reaches the bottler. He heats it and runs it off into tanks. It may or may not be allowed to cool; but in order that it may flow freely it is heated again and then sealed while hot. The two separate heatings at 160 for a couple of hours each would probably kill the germs of even American foul brood. It might do so entirely. The statement has been made that bottled honey is a frequent source of foul brood because the consumer throws away the empty bottles. Dr. White's observation would give us hope that they are not—certainly not European foul brood. However, we would never feed bees honey heated to the proper temperature for bottling, an account of the danger of transmitting American foul brood.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

SUGAR has gone up more than 60 per cent in a month, and is still rising. I wish it would take honey up with it. [See editorial comments elsewhere.—Ed.]

QUOTATIONS on comb honey, Aug. 15, are 12 to 17 cents a pound. That's evidently under the old law. To fit the new law, and bring the same price *per section*, the price must be 1 to 1½ cents higher per pound, according to price and weight.

"THE eight-frame hive must be worked in sections on the divisible-brood-chamber plan," p. 531. Sometimes, before supers are given, never after, at least "in this locality." [Something will depend on whether you are running for comb or extracted honey. You run for comb and we agree with your amended statement.—Ed.]

C. P. DADANT says, *American Bee Journal* p. 279, "I have seen so many good queens prove good the third year that I prefer not to replace a first-class two-year-old queen by one whose ability is unknown to me. The bees usually requeen in good time, if the matter is left to them." Same here. Those who think it pays to requeen every year might gain by getting a new strain of bees. Yet there are always some queens which do not come up to the mark, and they should be promptly replaced.

MR. EDITOR, allow me to emphasize what you say, p. 362. The report of failures may be just as valuable as the report of successes. We're all somewhat inclined to run in the same grooves. If I get it into my head that some fool thing will be a success, a number of others are likely to have the same notion. If no one reports failure, others will keep on trying the same thing. The man who reports failure saves a lot of others from the same failure. Then as to reporting before a thing is fully tried. A man may have a valuable idea which takes a considerable time to try out. He may die before completing his trial, or it may be that others may hasten the decision; and at any rate, if he's the right kind he'll want to share what he expects to be a good thing just as soon as possible. So go ahead, report your half-baked schemes and your failures; and if others laugh at you, you laugh too.

"A VERTICALLY wired comb will be wavy," p. 605. Is that "locality" again? My first wiring, and nearly all of my wiring was vertical, and of the hundreds of combs I do not recall that any were wavy. [Something depends on the weight of the foundation you

have, and how old it is. A light-weight foundation will have a tendency to show these waves more than the heavier grades. In the same way, a foundation that has been made, and laid away on the shelves for a year or so after it is made, will be less inclined to show this peculiarity after the combs are drawn. We should guess that you use a foundation that you have ordered six months to a year ahead of time in order to take advantage of the discount, and to be sure that you have it on hand when you need it. If this is true, it is age rather than locality that accounts for the difference. Years ago, when we used vertical wiring exclusively, a large part of our combs were a little wavy—some more than others. Whenever we put in foundation we use an article fresh from the mill, partly because we have no other, and partly because the bees draw it out a little more readily.—Ed.]

JULY 6, 11:10 A. M., I gave a comb to my best queen, taking from her all other combs, and took the combs away again just two hours later. The comb was given to a full colony made queenless. Ten queen-cells were started on the comb, and were sealed July 14. July 20 I cut out the cells and put them in a nursery. At 5 A. M., July 21, I went to see if any of the virgins were yet out of their cells. Six were already out! But I don't think they had been out long. If we assume that the eggs from those cells were laid the minute the comb was given to the queen, and that the virgins emerged from their cells the instant I opened the hive July 21, it would make the time from the laying of the egg to the hatching of the queen 14 days, 17 hours, 50 minutes, or 6 hours and 10 minutes less than 15 days. But that's an unreasonable assumption. The likelihood is that the queen did not lay within an hour (in other cases it has been two or three hours) after the comb was given to her, making the time just so much less. The difficult part is to get the queen to lay in a given comb within a short space of time. Sunday came in the way or I would have determined the time of development of the workers. [The period of incubation of young queens varies, according to our experience; and that variation we attribute to weather conditions and the particular environment furnished by the colony. If you were to try the experiment again, when it is a little cooler, and with a different colony, you might get a longer time of incubation. The period may be increased if the colony is not strong.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

The later honeyflow seems to be quite disappointing in many localities in the southern part of the State. While there are some locations where honey has been secured in surplus quantities, no such flow as had been anticipated has materialized. Since the middle of July my bees have secured only enough to keep them breeding well. A few have gained a few pounds; but as a rule they have made only a good living.

On page 619, Aug. 15, Dr. Miller says, "It would be much simpler if 'black brood' could have been left as the name of the New York disease, which is now being called European foul brood, and 'foul brood' had remained the name of the other disease called American foul brood." Some time ago I was advocating the same thing, when my attention was called to the fact that we had no law covering "black brood," and that it would be impossible for an inspector to collect for his work in inspecting for the black brood under the laws of California. On this account I quietly came off the trail.

In my opinion J. E. Crane is right, page 622, Aug. 15, when he concludes that superseding takes place at all times of the year. My experience has been that there is more superseding done in the height of the harvest, for at this time there are many old queens being replaced by young ones. The number of cases of supersedure outside of the honey season is very small, and most cases are forced by the failure of the old queens. In the majority of cases a swarm issues with the first hatched of the virgins during the honey season. Out of 17 swarms this season twelve were known to be induced by supersedure.

In the Aug. 15th issue the editor calls our attention to A. J. Plummer's scheme to stop robbing by trapping the robbers and holding them until they become harmonized. I mentioned a scheme very much on this line in the Aug. 1st issue, that was practiced by Mr. Byron Crawford, my helper during the season, he having copied it from Mr. W. H. Crawford, his father, who is a successful beekeeper of Roswell, N. M., and to whom the origin of the idea should be credited. The plan is successful on general lines; but the bees are still robbers, and will be nosing around the very first opportunity that is

offered. Trapping does not change their disposition to rob.

After reading the account of our editor's experience in moving bees, with some knowledge of recent experiments along that line I have acquired from other sources, I have begun to doubt if migratory beekeeping is really a paying business. To move into another locality is a different proposition; but to practice moving from place to place is an expensive business. There are few localities that are worthy of the name of a "bee country" but that will give an occasional good crop that, when figured as an investment, does not require the deduction of an immense expense account before figuring net profits. To my present way of thinking it would be preferable to have several yards in different localities. In this way one would be almost sure to "get in good" some place on his private bee map every season, and once in a while several would give good crops the same season, and thus add greatly to the profits of the business.

There is a common impression that foul brood cannot be eradicated, and quite frequently we hear expressions that it is here to stay. As a matter of fact there is really no reason to take such a gloomy look at this situation. There is no question but that it will take the combined efforts of the beekeeping public and the close scrutiny of our bee inspectors, the latter more especially, to look after the small uneducated beekeeper and the careless plunger who takes little interest in his holdings until about time to extract. The apiaries of the majority of our first-class beekeepers do not need to be inspected, yet they should submit to and rather encourage the inspection of their bees for the moral effect on the other fellow; and I might add that there are times when even the best and most careful of us will pick up a case before we are aware of the fact, which is rarely contracted from a first-class beekeeper. Diseases of man are not half so destructive as a whole as they were before an organized fight was begun on all kinds of contagion, with strict quarantine laws to aid in the fight. The same rigid organized system back of the fight on foul brood would at least reduce it to very small proportions, and should eradicate it entirely.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

In sections of New Mexico and Arizona beekeepers are suffering losses of honey yields from the catclaw on account of a kind of blight that destroys the blossoms during the blooming period. Several inquiries have been sent me for information on the subject; but it has been impossible for me to find an answer to this question with the meager particulars at hand. With the intention of drawing out more information on the subject I am mentioning it here. I shall be glad to hear from beekeepers from every section of the country where catclaw grows, if they have experienced trouble of this kind, with a description of the trouble and its extent. As soon as enough of this information is in I shall be glad to investigate the actual cause of the trouble and make a report.

* * *

BEEES AND POULTRY AT THE TEXAS DRY-FARM-ING CONGRESS.

The Texas Dry-farming Congress has just adjourned one of the most profitable sessions here at Hondo, Texas. These Congresses are held annually at various places in this semi-arid portion of this great State, and are indeed a great benefit to the country.

All branches of agriculture are given attention at these meetings. Experts in their respective lines of work are on the program, and the discussions are very valuable.

At the meetings just closed, lasting for several days, the subject of bees was given a proper place on the program. W. O. Victor was one of the speakers, with the subject, "My Experience with Bees in Southwest Texas." In his discourse he enumerated his varied experiences in different seasons he has been keeping bees in this part of the State. He mentioned the large crops that are often obtained during favorable seasons, but at the same time called the attention of his listeners to the fact that not all seasons are so favorable. He related that he has had to feed hundreds of dollars' worth of sugar in order to tide his starving colonies over a severe and unfavorable spring or an extreme summer drouth. But he stated that he was always repaid a thousand fold for this extra care on his part in bountiful honey crops later.

As the Apicultural Expert of the Texas State Department of Agriculture, I was also on the program. The important role of beekeeping, and especially as a splendid combination with poultry in the present-day movement for diversified farming, was em-

phasized. The home fruit orchard as a splendid place for keeping both the bees and poultry, and the benefit to the orchard of such a combination, was also pointed out. I also mentioned the fact that I have never believed a farm complete without a few colonies of bees, carefully kept in modern hives, to furnish for the family that most healthful of all sweets—honey.

* * *

MEETING OF TEXAS BEEKEEPERS' ASSOCIATION AT COLLEGE STATION, TEXAS.

In July the Texas Beekeepers' Association held one of the most profitable sessions for a number of years. More real business matters received attention at these sessions than at any previous meeting, and more interest and enthusiasm prevailed during the many topics under discussion.

It would be impossible for me to mention even briefly the many important matters discussed; but it is my intention to bring brief accounts of the most important matters from time to time.

It was gratifying indeed to listen to a real business-like president's address, delivered by M. B. Caraway, of Mathis, Tex. In his address he called especial attention to the importance of co-operation and organized effort on the part of the Texas beekeepers—one thing that is very much neglected by them now. He pleaded for a greater uniformity in packing our honey crops, since the great difference in packing honey now is an exceeding detriment to the honey industry in Texas. A greater uniformity of honey prices is also sought, because the beekeepers as a whole have had to suffer severely on account of the great lack of stable market prices. Among other things the importance of an active legislative committee to look after sufficient appropriations for carrying on the foul-brood-inspection work was mentioned. Due to the failure of procuring such appropriations during the last session of the legislature, our foul-brood law has been practically a "dead issue," because no inspection could be done.

It is gratifying to me that these, and quite a number of other matters of importance, were given so much attention, because I have mentioned all of these subjects from time to time in these columns. I have often regretted that these important questions did not receive the attention of the beekeepers before this time, because there has been an actual loss of thousands of dollars to the beekeeping industry in Texas on account of this very lack of attention.

J. E. Crane

SIFTINGS

Middlebury, Vt.

The honey season here has been very disappointing. Poor—very poor.

* * *

Mr. Byer's experience in different locations is certainly instructive, p. 493, July 1; while it is well to choose a location wisely we cannot be sure of a successful season every year; and the old proverb, "a rolling stone gathers no moss," is as applicable to beekeeping as to any other pursuit.

* * *

During last winter many of my hives were covered with snow for several weeks, yet without harm. One yard of over sixty colonies was almost entirely covered, yet only one colony failed to respond to the April roll-call, and that had evidently decamped, as it contained no bees, either dead or alive.

* * *

I have been in the habit for many years of mixing honey with sugar syrup when feeding in autumn to prevent granulation; but for the past two years I have with some hesitation fed the sugar syrup (two of sugar to one of water), without honey, and found no more granulation, either last spring or the year before, when honey was mixed with the sugar syrup.

* * *

Mr. Chadwick, page 491, July 1, says, "A poor queen cannot always be judged by the amount of bees in her colony," as, by changing the hive so she will have more workers, she may prove quite prolific. Now, this is doubtless true so far as the laying of the queen is concerned; but when a colony runs down, as he says, it shows that, if the queen is not a poor layer, her offspring are lacking in stamina, endurance, or longevity, which is quite as important as numbers in the campaign of honey-gathering.

* * *

Dr. Miller, page 531, suggests the use of the sharp cutting pincers the blacksmith uses for clipping the hoofs of horses, instead of a saw or pruning-shears recommended by A. I. Root for removing the spurs from fowls. Now, if we may stop the discussion of beekeeping problems for a little, let me suggest the application of a small amount of caustic to the spurs of young fowls, and prevent their growth the same as applied to calves to prevent the growth of horns.

Arthur C. Miller well says, page 498, July 1, that he prefers to have foundation drawn out in upper stories over full colonies. The best place, surely; but when he says the best time is when the bees are at work on honey-dew, it is all right if you have it in quantity, but we do not have it about here plentifully enough for that purpose oftener than once in twenty-five or thirty years; in fact, I have known it but once in more than fifty years.

* * * *

Some time ago I inquired in regard to the chemical composition of pollen, and I recently received a letter from a good friend, Adrian Getaz, of Knoxville, Tenn., saying that there is plenty of information along this line in the standard works. He says further that "In general the pollen differs but little from the seeds of the plants except that it has more fatty or oily compounds, and seldom any fecal matter—bitter, poisonous, medicinal, or aromatic, which one often finds in seeds. Beans come nearer the average pollen than any other grain." Thanks.

* * *

We are greatly indebted to GLEANINGS for the full discussion of the net-weight law as it relates to the packing of honey. The expense of packing, by this law, is increased. That must come out of the beekeeper unless the price of comb honey is raised; and it would seem as though that would be the inevitable result. It will, I believe, drive many beekeepers now producing comb honey to producing extracted, which can be sold in bulk, and so avoid the bother. I believe it will also have a tendency to cause comb honey to be sold by count rather than by weight, as at present in the East.

* * *

Wesley Foster asks, page 406, "When is a colony inspected?" A pertinent question, surely, to every inspector. If there is much disease in a yard it will almost invariably be found in a few of the weaker colonies. If none is found in them it seems hardly worth while to go through all, especially if covered with heavy supers. So we may inspect by lifting one or all the combs from every hive; but by the last method we can not get over nearly as much territory. Many times I find that it is as cheap to help a man clean up his yard as to destroy the bees and hives if he does not. A little assistance in this way produces good feeling between the inspector and beekeeper.

Dr. Miller, page 325, May 1, thinks I am a little hard on the other Miller for thinking a colony needs 35 lbs. of heavy syrup Oct. 1. Well, let's see. I have found by weighing that even heavy syrup fed to a colony shrinks greatly before it is ripened and stored, and it is not safe to count on more than 25 lbs. of food as the equivalent of honey. I have also found that a good colony will consume, from Nov. 1 to April 1, on an average, 17 lbs. of honey when wintered out of doors. I learned this by shaking the bees from the combs and weighing them, both in the fall and again in the spring the first week in April. This leaves only 8 lbs. for spring use. Where bees are wintered in a good cellar, seven or eight pounds less of feed will answer; but I was speaking of bees wintered out of doors. Mr. Miller's idea, that those who feed do not as a rule feed half enough is quite right, especially as to beginners.

* * *

I suppose it is somewhat easier to keep quiet than to report our experience when it is different from that of those with more experience than ourselves. I have been somewhat surprised that we have had few or no reports of failures in introducing queens by the "smoke method." Even the best methods of manipulation will sometimes fail, and I find this method no exception. I have not found beekeepers as enthusiastic over it as I had expected. In talking with one very intelligent beekeeper he said that he tried to introduce some twenty queens by this method last year, and lost more than half of them. He did not seem bitter about it, but thought the reason for his lack of success was that his colonies were crowded with bees; and the frames coming down quite close to the bottom-board prevented the smoke from thoroughly penetrating to every part of the colony. It was his opinion that the method would be likely to prove more successful with smaller colonies, or where there was more room between the bottom of the frames and bottom-board.

* * *

Mr. P. C. Chadwick, page 491, relates a very interesting case of the effects of a sting. During the past fifty years I have seen a good many cases of severe poisoning from stings; and I might say, in a general way, that some poisons seem to have a particular affinity for some part of the body, as alcohol has for the brain, or bee poison for the parts about the eye. There appears to be an effort on the part of the system to expel poisons through the liver, kidneys, lungs, skin, or mucous membrane. Some poisons

appear to be expelled in one way and some in another. Bee poison is evidently driven out of the body through the skin or mucous membrane, or both, and will, in persons especially sensitive to this poison, sometimes cause the whole body to be covered with blotches and cause intense pain over the whole surface. When poison passes through the mucous membrane it may so irritate the lungs as to cause coughing and sometimes almost suffocation and other distressing symptoms—even loss of consciousness. The best treatment I have found is to get the patient into a profuse perspiration with an alcohol-lamp or hot bath as quickly as possible, thus drawing the blood and poison to the skin and keeping up strength with ammonia as a stimulant. In every case, so far as I remember, as soon as rapid sweating is produced the throat and lung symptoms slowly disappear.

* * * *

Page 531, July 15, Mr. P. C. Chadwick says that he thinks Wesley Foster entirely right in saying that "Bees clustered outside their hive are wasting time," and, of course, thinks I was entirely wrong in not feeling sure about it. Well, now, did you ever! Because we see a woman sitting under the shade of a tree by her kitchen door when the mercury is at 90 degrees in the shade, it is no sign she is loafing or wasting time. She may be shelling peas or paring potatoes for the noonday meal, or, it may be, darning stockings or making a dress for the baby, and, like a sensible woman, does her work where she can be most comfortable; and it is unbecoming in us to criticise her. For the comfort of my friends Chadwick and Foster, let me say that I thought and felt, thirty or forty years ago, very much as they do now. We called it "loafing" in those days. If no honey is coming in, there is certainly no loss in bees clustering outside their hive. If nectar is coming in freely we shall doubtless find every blessed bee clustered outside full of nectar which they are reducing to honey. That bees can evaporate the excess of moisture from nectar in hot weather outside their hive I think needs little proof. I will say, however, that I have found a colony that had clustered on a tree and remained gathering nectar, evaporating it and building their combs and storing their honey in the open air. Of course, if the entrance is very small and insufficient there might be some loss or waste of time when bees cluster outside; but where there is sufficient ventilation, and they cluster out for a day or two in the intensely hot or humid days, I have come to think there is little waste of time,

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

UNRIPE HONEY.

"Is it best to leave honey on the hive as long as possible, take it off as soon as it is all sealed over, or tier it up before the sealing has just begun? I am told that unsealed honey ripens much faster than that which is sealed over?"

Years ago, especially, it was only natural for unthinking beekeepers to avoid the work of uncapping the combs, and more pounds of honey could generally be obtained by extracting what had accumulated in the combs every three or four days during a good nectar flow than where the extracting was not done till the most of the honey was sealed over. This course generally brought thin unripe honey to the consumers who soon became prejudiced against all extracted honey. Nothing could have been much more damaging to the sale of extracted honey than this marketing of an unripe article. To obviate this the beekeepers advocated leaving all honey on the hive until it was fully sealed over, the inference being that honey was fully ripened as soon as the cells were all sealed over. But this part depends upon the flow of nectar and the humidity of the atmosphere.

During a bountiful flow of nectar from clover when it rains nearly every night, and there is what is called a "scalding sun" during the day, the bees will rush the honey into the combs pell-mell and seal it over before it is really ripe. In fact, at such times I have often had section honey (taken off as soon as capped over, and while the combs were of that snowy whiteness which captivates the eyes of every consumer) so thin that, on cutting the comb twenty-four hours later, it would run about the plate almost like water; and unless the sections were stored in a warm, dry, well-ventilated room to ripen, the cappings would soon have a watery appearance. Then later the soured nectar would leak out, to the disgust of all who had any thing to do with it. I once saw hundreds of cases of such stuff in the basement of a commission house in New York. Under such circumstances as these it is better to store all honey in a room where the temperature holds for four or five weeks at from 75 to 90 degrees F., the honey being piled so that the air can circulate all about and up through the combs. At the end of this time the honey in both sealed and unsealed cells will become so thoroughly ripened that it will not even run out of the unsealed cells, if the combs are laid down.

Then, if preferred, supers of combs for

extracting can be tiered up just as the bees begin to seal the first cells, thereby getting the honey away from the brood-nest before much of it is sealed. In this position the bees are slower in capping it—so slow that it often ripens up nicely before the bees get it capped, and thus we are saved the labor of uncapping. Honey ought to be thoroughly ripened before it is extracted from the comb, and it may then be put into cans very soon after it leaves the extractor. To my taste the flavor is much better preserved if the honey is sealed up in a can or barrel than if left open to the air, as many think necessary to ripen it thoroughly.

Where honey is left on the hive for a long time, or in a warm dry room for the proper ripening, cool weather often comes on so that this thick well-ripened honey is hard to extract unless some provision is made for warming the combs. By tiering the hives containing the combs we wish to extract in such a way that they are separated two or more inches from each other in a small tight room in which artificial heat can be applied till the temperature of the whole is raised to 100 degrees, and held there for half a day, honey can be extracted as easily in cold weather as in warm, and in this way stormy weather can be used.

Of course I am writing from the standpoint of central New York. If I am correctly informed, California and many of the southwestern States have an atmosphere where the humidity is so slight that honey comes from the flowers, not as nectar, out almost in a perfect state, so that it often weighs much above that which is considered thoroughly ripened here. Eleven pounds to the gallon used to be considered a fairly good weight, but that would hardly do at the present time. New York requires 11 pounds specific gravity for a gallon of maple syrup, and such syrup is much thinner than any honey I ever could bring myself to think suitable for market. One of the reasons for not making maple syrup heavier than this is that a heavier article will sugar or crystallize in the can. This is something not to be tolerated, as where such sugar syrup is stored in glass jars the result is that the jars are almost always broken in trying to remove it. But with honey, the thicker it is the less liable it is to candy or granulate. Average extracted honey here in central New York runs about 12 lbs. to the gallon. At least after repeated weighing for years, I have been in the habit of filling a quart can and calling it three pounds.

GENERAL CORRESPONDENCE

MARKING AND RECORD-KEEPING

BY FLORA M'INTYRE

[Miss McIntyre is the young woman who paid part of her college expenses by working with the bees. See her article on page 893, Dec. 15, 1913.—Ed.]

The hives in the Sespe apiary are set out in rows, each of which is designated by a letter. The A row is at the extreme left of the extracting-house, and B, C, D, etc., follow in order until we reach the Q row, or thereabout, at the extreme right. The hive places have each a number, beginning with No. 1 at the upper end of each row, proceeding in order down to 25 or less at the path which skirts the lower side of the apiary and passes the extracting-house door. The hives are grouped in twos within the rows, and two single rows placed back to back form a double row. All work is done from the path within the double row.

alphabet printed one on each leaf. The record of each single row occupies one double page, or about 8 x 13 inches. The requisite number of columns are ruled off, and the column-headings and hive-numbers written, with pen and ink. The record itself is kept in pencil, a slender pencil with a good eraser on one end being tied securely to the book. A new book is prepared at the beginning of each season, and the record is begun when the bees are first inspected in the spring, being added to and modified as the season advances. The pencil and eraser make it easy to alter a record or transfer it to another part of the book in case a hive is



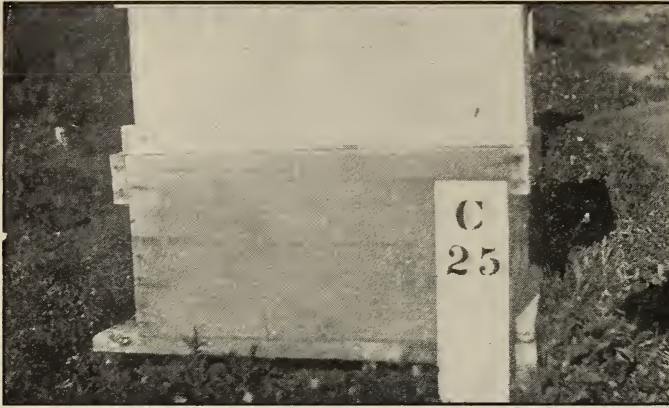
A corner of the "Sespe" apiary, showing the concrete storehouse in the background.

The numbers and letters are stenciled in black on white painted stakes about four inches wide and a foot high, driven into the ground at the lower side of the hives and close to the rear corner. The lower hive in each group of two has the number-stake, as shown in the illustration, the number of the intervening hive being easily ascertained by a glance at the stake above.

The record-book is an ordinary index-book about 4 inches wide and 13 long, with the margins cut to show the letters of the

moved and its address thus changed. On the next page is a possible record of the B row, showing the system used in making records.

The numbers under "Age" indicate that the queen is in her first or second year as the case may be. Under "Strain" is usually placed the initial letter of the breeder's name from whom the original ancestor of the queen was secured. "Grade" refers also to the queen—X meaning fair; XX good, and XXX very good in size, color, and such other characteristics as can be



A close view showing the numbering-stake.

No	Age	Strain	Grade	Bees	Honey	Remarks
1	1		X	5	7	
2	1	K	XX	8	10	
3	1	W	XX	8	20	
4				4	20	Q'less 4-27
5						
6	2		XX	8	10	Q. cells
7	1	W	XXX	8	25	
8	1		X	8	10	
9	1	W	XX	8	7	
10	2	W	XX	6	6	No q. ex.; no cloth, dark
11	1			1	10	Weak
12	1	W	XX	8	15	
13	1	R	XX	8	10	
14	1		XX	5	4	Feed
15	1	W	XX	8	15	
16	1	K	X			
17						
18	1	W	XX	8	10	
19	1		XX	4	3	No q. ex.; black, cross; feed
20	1	R	X	8	10	
21						
22	2	W	XXX	8	25	
23	1			8	10	
24	1			8	10	dark

ascertained from the general condition of the colony. The numbers under "Bees" indicate the number of combs occupied by the bees; while those under "Honey" indicate the approximate number of pounds of honey in the super. Under "Remarks," "Q" stands for queen, of course; "ex." for excluder, and 4-27 is the date on which the "remark" was made.

During that interesting first thorough inspection in the spring every queen is found and clipped, if need be. Her age and grading are then recorded, together with the approximate number of pounds of honey and the number of combs of bees in each hive. The book, which is light, bound with tough paper, and of a size and shape suited to slipping in and out of a pocket, is carried about in the apiary whenever there is any work to be done, and any thing needing attention later is recorded. There are, however, some exceptions to this rule, as, for instance, when there is wholesale feeding to be done, each colony needing it is marked, during the day, with a clod on the cover of the hive, and this is thrown off as the colonies are fed in the evening; also, during the



C and D constitute a double row. Note the convenience and legibility of the number-stakes and the grouping of the hives within the rows,

extracting season the colonies ready to be extracted are marked in the same way, the clods getting dumped off when the hives are opened to secure the honey. No minute record is kept of the amount of honey produced by each colony; but when a hive fills up with noticeable rapidity after being extracted, the fact is noted; and if the performance is repeated consistently throughout the season, such colony will be marked "good for honey" and, perhaps, if other things are favorable, will receive the remark, "breed;" which is the highest honor we have to bestow.

The selection of the few fitted for this honor is undoubtedly the chief object of record-keeping, though convenience and time-saving are to be considered. For instance, here is a colony needing a comb of honey to tide it over. The record shows the nearest hive with plenty to spare. I wish to requeen all colonies having inferior or old queens. The record shows just how many queens are needed, and where. I wish to rear a few queens after the swarming season is over. The record shows what colonies have old queens, and are apt to be superseding, and I look there for royal jelly and bees willing to care for my cells, etc. In fact, the record-book is in such constant use that it is about worn to a "frazzle" by the end of the season, and then it is carefully preserved in the tin box along with insurance policies and the deed to our share of the earth.

From the back pages of an old record-book I copy the following:

3-31 E23 to B18
4-3 B7 to C18
4-3 E9 to D10. O. K. 5-25
4-3 G26 to L27. O. K. 4-21
4-7 K20 to K19. O. K. 4-21
4-7 I21 to L15. O. K. 4-21
4-7 M8 to K8. O. K. 4-21
4-7 B16 to E17. O. K. 5-9
4-7 C6 to D3. O. K. 5-9
4-7 E16 to H16. O. K. 5-25

This is the beginning of the swarm-record for 1910. It is a sort of daybook of swarms. The first entry means that on March 31 E23 swarmed with an old queen, and the hive with its brood, bees, and queen-cells was located at B18, the old queen and her swarm being allowed to return to a hive of empty combs at E23.



Between the double rows, as, for instance, CD and EF, is a wide space toward which the hives face.

This record must be kept as the work is done, the necessary changes and additions being made at leisure in the main record. OK 5-25 means that the hive moved to D10 with queen-cells was found on May 25 to have a laying queen. Evidently it was found queenless when the April 21st inspection was made, and had to have another cell.

It is with this part of the record that I have had the longest acquaintance, having begun quite young to watch for swarming; and to indicate the importance attached to records with us, let me tell you one of my childhood's recurrent dreams. I find myself in the orchard toward evening, and discover with a sinking heart a neatly clustered swarm evidently with an unclipped (and therefore virgin) queen hanging to a branch. Then I discover another and another; here, there, everywhere, all through the trees, big swarms, little swarms, medium-sized swarms, all quiet and compactly clustered. Black, heart-sinking despair overcomes me as I realize the utter hopelessness of ever discovering so much as a clue to the origin of a single swarm, when I should have recorded the source of each and every one. Then I wonder how I could have been so careless, and where I could have been when all those swarms were coming out, and finally I awake immensely relieved to find it isn't so. Though it has been a number of years since I watched for swarms, I dream that dream yet sometimes.

Ventura, Cal.

[The reader should remember 'hat the system of record-keeping here described is the actual system that has been in use for years in one of the largest apiaries in California. Surely more than enough time is saved to compensate for the time required in the keeping of the record.—Ed.]



GLIMPSES OF SOME IOWA BEEKEEPERS. By FRANK C. PELLFTT.

1. Home of E. E. Townsend, Ft. Dodge, Iowa. 2. (To the right, at the top), auto used by E. E. Townsend, Ft. Dodge, for outyard work. 3. Home of J. I. Wiltzie, Arlington, Iowa. 4. Bert A. Brown's apiary, Des Moines, Iowa (a beekeeper who sold \$1500 worth of honey from a town lot in 1913). 5. Irving Wernick, Lake City, Iowa (produced \$1000 from 40 colonies in 1913). 6. Home of J. H. Meloy, Ft. Dodge, Ia.



GLIMPSES OF SOME IOWA BEEKEEPERS

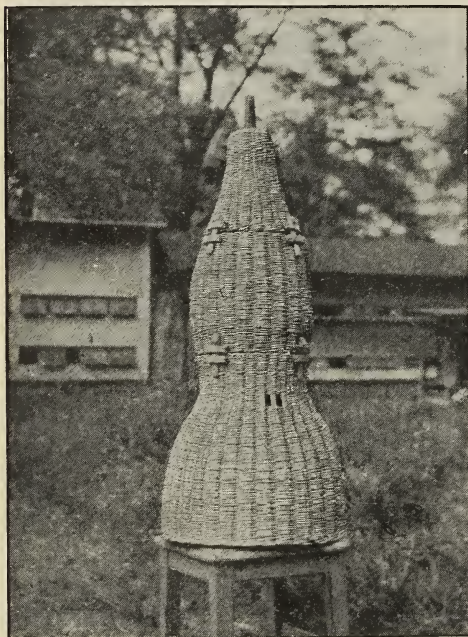
7. J. H. Meloy, Ft. Dodge, keeps 98 colonies in the rear of a town lot. 8. Home of J. L. Strong, Clarinda (50 years a beekeeper). 9. B. A. Aldrich's honey-house at Smithland. The finest equipped honey-house in Iowa. 10. Chris Bach and his apiary at Maquoketa. 11. C. J. Barber, Smithland, Iowa (85 years old, and as spry as a boy); still cares for his large apiary. 12. Home of Walter Reppert, Burlington, Iowa.

THE HIVE IN THE TIME OF ROMAN EMPERORS

BY FRANK RICHTER

As people rose from the first state of savagery to domestic and economical life, the bee followed them from the mountains and forests to the gardens and courts of their new homes. Bee culture advanced step by step with the civilization of men. The first civilized people exercised regular bee culture and made use of its products for their wants.

In the care of bees and the study of their habits the Romans and Greeks stood at the head of all nations. Their great statesmen, poets, and learned men such as Pliny, Hesiod, Virgil, Ovid, Columella, etc., studied



A woven beehive such as was used by ancient Romans

bee culture, and only in that way was it possible that, in the time of C. Junius Columella, in the middle of the first century, it rose to the highest state which presupposed knowledge not inferior to those of our time.

Originally the bees lived in trees and caverns until Aristans lodged them in artificial dwellings and thus made an invention which by and by spread over the whole world. The hives first were made of hollow tree-trunks and later of trunks worked out by hand; most of them were of oak-trees; but higher esteemed were hives made of the bark of the cork oak. The contents of such

a hive amounted to 648 fists. It was soon found that the capacity of a hive ought to be in proportion to the size of the colony. The back of the hive was provided with a movable partition which not only permitted manipulation from behind, as the beekeepers of that time recommended, but also allowed enlarging the inner space when there was a good honey-flow and plenty of bees.

In time, when work did not thrive, the partition was pushed inside (Columella), and thereby the room diminished in order to prevent the workers from becoming idle or discouraged (Aristotle), or cease working (Pliny). The joints were spread over with cow-dung to prevent drafts of air. Hives made of bark were more highly valued than those of hurdlework (basketwork), (*alous vitilis*). In Italy the flexible and tough twigs of the ferul-shrub were used for twisting. Such hives of hurdlework were certainly better than those of barks or willow-twigs. Hives of willow twigs generally were round, while those of ferul twigs had a quadrangular shape.

In Italy the Romans also used boards for making hives. According to Roman tradition the hives were 3 feet high and a foot broad. They were round, pointed at the top, and drawn in in the middle, so that they resembled the bee in shape. The hive was divided into three separable parts. The top or cover had the form of an inverted cup. The middle piece corresponded to our super, and the bottom part was the brood-chamber. The bottom-board consisted of a disk of basketwork, and it also served to diminish the room in the brood-chamber when it was pushed inside and was fixed by three cleats. Over the hurdlework was spread a mixture of quicklime and cow-dung or slippery cay. According to Varro several entrance-holes were placed in the narrow and upper part of the brood-chamber not in the front, but on the left and right side of the skep. Palladius fixed their number to two or three, and advised that they be small and narrow, not larger than to allow a bee to pass in order to prevent the wind blowing in and noxious insects from entering.

The author of these lines was invited to make a model of such a skep after the description of Varro, for the exhibition in Vienna. Accordingly I made a sketch of the Roman hive and showed it to the beemaster of the beemaster school in Vienna. After having looked at the sketch for a

moment he exclaimed: "Well, we have just the same thing in our bee museum." He looked for it; and when he brought it I could easily see that it was exactly the same shape I had designed. It was a skep used up to our days by a colony of Latin-speaking Romans in Transylvania. Professor F. Funke, director of the imperial school of hurdlework (basketwork) in Vienna, had made a model of the sketch, which was shown at the Adria exhibition in the Austrian Imperial Department of Agriculture. Such skeps are still used in the Latin-speaking part of Transylvania and in Bretagne, France.

The inclination of the old Romans to keep bees and to study their nature in order to regulate breeding according to the law of nature, gave occasion to a country squire, as Pliny says (it was a senator, if I am not mistaken), to construct a hive of transparent material, which allowed the beekeeper's eyes to observe the mystery of the life of the bees. The observation hives of the ancient Romans were made of transparent horn, also used for lanterns, or of lapis speculario which was imported from Spain and Cappadocia.

Vienna, Austria.

BANK NOTES—ALL GENUINE

BY ARTHUR C. MILLER

Some fruit number, that of February 1. But it is not all a love-feast 'twixt fruitman and beeman. Hereabouts we are moving our bees as far from the orchards as we can get them. What between careless spraying and spraying sweetened poisons for special purposes, an orchard is becoming a bad neighbor for the beekeeper. We will let them go it alone until they get over being stark, staring, poison-mad.

A chap in North Tonawanda, N. Y., wants to know if winter cases should project below the bottom-board. At the risk of walking all over the editor's very best pet corns I am going to butt in and say yes, certainly. All my winter (and summer) cases project below the bottom-board to the extent that the joint between the hive and "floor" (say "floor," boys—shorter, and does not remind one of youthful "paddlings") is protected by the case. Then all drip stays outside—much nicer than having it creep inside. You'd be sure of it if you had to sit on the floor. [We agree with you.—Ed.]

Ventilated escape-boards sound very good to me—gives me a freedom-from-care feeling. When one puts on the escapes to be left for perhaps a week before the honey can be taken off—as at some outyard—one worries a bit if a spell of blistering hot weather shows up. And, by the way, I never could understand why all escape-boards have been made with little more than a beespace on the top side and none on the under. Use half an inch on each side and you will discover another improvement.

Summing up city beekeeping, the editor says, satisfactory city beekeeping *rests* en-

tirely with the beekeeper. Never hit the nail squarer on the head. Some city beekeepers (and others) are great "resters."

Some folks never do learn discretion. Dr. Miller and "E. R." have been butting in on bees' winter sleep, and saying they (the bees) do not fan in winter, and somebody said something. Don't you children yet know that when you want to meddle in such things you should ask Allen Latham first? When Allen says so, 'tis so—usually.

Necessity is, etc. One of those days when nothing seemed to hitch, and fingers were all thumbs and bees all stings, I cut into a fine queen-cell which I particularly did not want to lose. Say any thing? No use. I just tried to patch it up, but I knew jolly well what the bees would do with that patch, and I had no cell-protector—at least they were all in hiding. In pawing over things, looking for one, I tumbled down a piece of super foundation—just a small strip, rather dusty, and more or less soft, and I wound it snugly around that cell and pinched it together over the base, and tucked it down into a nucleus. The blessed little bees fastened the edges down, and the queen hatched like any other. Why did I do it? Nobody knows—just an inspiration; but I discovered that a bit of foundation is the most perfect cell-protector ever invented. The bees seem to think(?) the cell is on the other fellow's side of the comb, and never try to cut through. Foolish little bees!

Do you like gardening? enjoy transplanting things? every try transplanting baby queens? Neat little trick. Suppose you find a cluster of cells from some choice queen

that had departed or merely died. The cells are so bunched that several of them must be destroyed in saving the others. Hunt up some old cells; those that have hatched are all right. Lay them in the sun to warm up a bit, then cut them nearly in two squarely across and near the base where there is no cocoon. Now carefully open one of the cells, which must be destroyed; gently spill the white inert queen into the palm of your hand; hold the old cell against your palm so the opened butt will be in front of the queen, and let her slide in gently. Close the cell; wrap it in foundation, letting the latter cover the tip—it is better if the old cap is adhering—tuck it into a nucleus, and in due time you will have your queen. Never mind watering after transplanting; they won't wilt.

* * *

Wesley Foster will be getting himself disloved 'long with some others if he does not quit talking home-made supplies. It is a good deal of an art to know what *not* to have made at the planing-mill and box-shop, and at the carpenter's down the lane, and out in the woodshed. But at the risk of getting into an awful mess I should like to ask Wesley how the manufacturers using automatic machines which turn out thousands of frames a day can figure a charge of \$35.00 for a thousand of them when there is less than 220 feet of "scrap stock" in them. Yep, scrap stock—all made from short lengths and edgings.

* * *

The March *American Bee Journal* has a picture of a man scorching out a hive while the inspector watches him. Looks like a Rhode Island coat of arms, only here 'tis one man at work and three looking on. But just remember that paint or common thin machine oil is an equally good sterilizer. Scrape off the lumps of wax and propolis—as you should do before using the torch—and then apply your paint or oil. Plain kerosene (coal oil) is all right, only it takes it a long time to "unsmell."

* * *

When the doctors disagree, there is apt to be trouble somewhere. Dr. Miller gets a crop which breaks all records. Mr. Greiner wants to "double the yield," and Mr. Holtermann is bemoaning the fact that he can't sell what he has. Guess I won't meddle.

* * *

Did you see the front cover of the March *American Bee Journal*? Fine picture of doll-houses and dog-kennels and washing-machines and bird-cages. It is labeled an "Exhibition of Hives at Chalon-sur-Saone."

But what is in a name? Guess I know a dog-house when I see it. No wonder the "furriners" cannot compete with us at bee-keeping if they keep bees in such things—should not think any self-respecting bee would stay.

* * *

A friend (oh, yes! I have some) sent me the following. He did not say what paper he got it from, so I cannot give credit, but it is worth preserving.

HOW DOTH THE LITTLE BUSY BEE?

(A bee culturist tells us that five dollars' worth of bees kept in a city flat will manufacture a hundred dollars' worth of honey in a year.)

On learning that a herd of bees
Could be sent forth to loot
The florists' shops and grocery stores
That deal in fancy fruit,
I bought a swarm and housed them
On my kitchen window-sill,
That they might journey out
And ply their piracy at will.

"Go, little bees," I said to them,
"I care not where you roam,
Just so you prove industrious,
And bring the honey home."
A while they labored joyously—
A real delight to see;
'Twas very pleasant to observe
How hard they worked for me.

But soon the gladsome spring-time came,
And shortly after that
Queer things began to happen
In our one-time tranquil flat.
For when we put the windows up
We found, to our surprise,
Instead of going out to work
They grafted our supplies!

We found them in the sugar-bowl,
And in the currant jam;
They buzzed about the champagne sauce
We poured upon the ham.
Our cat was much annoyed at this,
And sought to interfere,
But after he'd attacked one bee
He went away from here.

That evening I discovered
What had happened to the cat.
And subsequent to this event
Was careful where I sat.
At lunch, when Uncle Ephraim
Went to get a hasty snack,
He innocently bit a bee,
Which viciously bit back.

"They're trying to get rid of me,"
I heard him sadly mutter;
"They're puttin' poisoned needles
In their uncle's bread and butter!"
The injured way he looks at me
Now haunts me in my sleep,
And if you want a fleet of bees
I'll let you have them cheap!

* * *

Dr. Miller says that bees do not put differently colored pollen in the same cell or different grades of honey in the same cell—Straws, March 15. Phew, doctor! Do you have but one color of pollen in your locality, or one color of honey? Hereabouts a cell

of pollen split lengthwise often looks almost like a rainbow. As for honeys being mixed—why, they are often, or perhaps always, mixed when the bees of a colony are work-

ing on more than one source. It has been proved beyond doubt. But this is not a good locality, if you please.

Providence, R. I.

VALUE OF SHEEP TO KEEP DOWN THE GRASS AMONG THE HIVES

BY A. J. HALTER

The excessive growth of grass and weeds is a menace in an apiary, often requiring hours of arduous labor to check an undesirable crop. This is especially true where a large number of colonies are placed in a comparatively small space. The immediate growth in front of entrances causes confusion among bees; and to remove the same it becomes necessary to get down on your knees to be in position to do justice. However the more sacred your appearance may assume, the more relentless the behavior of the bees; for if there is any mercy shown by them it certainly does not manifest itself when a person is in this position in front of a hive.

The past season, Mr. W. C. Ritchie, of Hudson, O., where my outyard is located, purchased a large number of sheep, among which were five rams, four of this number

being prepared for market. At first these rams were penned in a small lot adjacent to the outyard, and during the night had access to the hives. Later, however, upon merits of good behavior they were entirely at liberty. This yard, comprising about $\frac{1}{4}$ acre, contained a vigorous growth of grass, asters, elderberry bushes, and various fruit-trees. In the course of several weeks the rams had made a fair clean-up of grass and weeds, and began to pull off the lower branches of the elders, peeling the bark of the larger stems. Later this appetite led to peeling peach-trees, so that it became necessary to place burlap around them.

Every thing seemed harmonious. During the period of warm weather the rams would seek the shade during the day, and graze during the night. Their craving for leaves and shrubbery did not recede; and when the



Some sheep which kept the grass cropped short in an apiary of 123 hives.

clean-up was nearing its end they became very restless, and occasionally would move or overturn a hive. The bees, however, did not resent their presence in front of the entrance unless the hive was disturbed. In one instance I had occasion to witness the performance of the largest of the five, the ultimate result of brushing aside a colony of bees. When he was stung on the head he ran; and when stung on the legs it was "kick;" and while his disposition at times could not be trusted (being his delight to bunt), I took refuge, seeking a point of view until his intense anger had subsided.

The rains were all removed before the bees were prepared for winter, at which time the ground was rather barren, this being a most desirable feature, as grass and weeds only harbor mice that often become destructive during winter.

This experience saved me many hours of labor in a yard of 123 colonies, and I feel the work would not have been so complete had I attempted it myself. Instead I enjoyed several afternoons fishing. Another season I hope to try this plan with ewes, they being more inclined to be contented.

Akron, Ohio.

THE EVOLUTION OF THE BEE-SHED IN ARIZONA

BY W. H. M'CORMICK

During the year 1896 I bought some bees a few miles from Phoenix, Arizona. Acting on the advice of the man who sold them to me I located them in a grove of large cottonwood-trees. The only method of increase I knew of then was swarming. Before the season was over I had considerable experience in climbing trees with a saw and rope. Since then, when I've kept bees, it has always been under a shed.

At that time most Arizona beekeepers built their sheds of poles and posts. Forked posts were set in the ground. Then poles enough were laid across them to hold the brush up. Then I heard of some one who "built a barbed-wire fence flatwise, put it

on stilts, tied the ends down, and piled brush on top." I don't know who discovered that it was not necessary to sink any except the end posts and the anchor posts in the ground. Perhaps some one's posts rotted off, and it occurred to him to nail braces from the posts to the cap.

I got the ideas for the plan of shed shown in the engraving from a shed built by Mr. Wm. Chambers, of Phoenix. It seems to me the strongest and most economical shed I have seen. The wires that hold the brush from blowing off are not shown. Sometimes none are needed; but occasionally it is necessary to use two or three. All depends on the material used and the location. When



Bee-shed in Arizona, made by stretching wires across the tops of the posts and laying brush over them.



A beekeeper dressed wholly in white is less conspicuous than one dressed in black.

used they are stretched over the top of the brush, and are fastened to the anchor logs. They may be tied to the under wires with baling wire. The posts should be sunk four feet in the ground. While the wire is being stretched it is necessary to have braces from the anchor-logs to the caps of the end bents. One must be careful not to have the shed too low. Twelve feet is wide enough. Eleven feet is good, and ten feet will do.

In this country we always build sheds from east to west. Perhaps it is a little better to slant them a little from southeast to

northwest. The morning sun will not melt down new combs, but the evening sun may. All intermediate bents are built like the end bents, except that they are of lighter material, and are not set in the ground.

This style of shed has one advantage that I have never seen noted in print. Few bees fly through the shed. Bees going behind their hives fly over the shed. It is often hard to make strangers understand that they are safer between the hives than they are a few yards in front of them.

Parker, Ariz.

DO BEES DISLIKE BLACK ?

BY JOHN H. LOVELL

The world itself is not wider than the belief that angry bees will sting black sooner than white. The other day in an old number of *GLEANINGS* I found Mr. Louis H. Scholl saying: "Our experience teaches us to wear lighter-colored apparel with a good veil, and thus prevent stirring up the ire of the busy little workers who make for us a living, instead of allowing them to kill themselves uselessly on any thing they do not like." From the antipodes of South Africa a few weeks ago came the exceedingly interesting and convincing account of

Mr. W. G. Davis, describing how in the Transvaal bees on the rampage attacked and killed domestic animals which were wholly or partially black, while the lighter-colored ones escaped with only a few stings. When he wore lighter-colored clothing himself the bees troubled him very little. To the query, "Why do bees sting black?" he replies that it is because it is foreign to them. "There are no black flowers for the bees to work on, and black is, consequently, foreign to them; while, on the other hand, there are plenty of yellow and white flowers

that they are constantly working on, hence their frenzy to sting the former color." We shall return to this idea later.

It has been suggested that it is the roughness or hairiness of the object which offends the bees and not its color. It seemed desirable to test this view by experiment. On Sept. 15 I donned an entirely white suit, including a white veil. On the upper side of my right arm there was a band of black paper so smooth that the bees could not cling to it. When I removed the cover of one of the hives, the tap, tap, tap, of the bees against the black paper sounded not unlike hailstones on a roof. The left white sleeve was almost wholly unnoticed. As bees have been observed to discriminate against black feathers, fur, felt, glass, cloth, and paper, it can not be the quality of the material which provokes the greater number of stings.

We present two photographs, one of a beekeeper dressed wholly in white, including a white veil and a straw hat, and another of a beekeeper in a black alpaca suit wearing a black hat and veil. It is clear that the black figure is the more conspicuous, and offers a greater contrast to the general landscape. The white figure contrasts much less strongly with the grass, the water, the sky, and the foliage of the trees; and yet the contrast is greater than it is, in fact, for the foliage of the trees in the photograph is darker than in nature. In the case of the black dress the part on which the sun is shining appears less dark than it is in reality. Both photographs were taken in the bright sunlight at 10 o'clock. Should both of these figures threaten a home of the honeybee, it is not difficult to understand how the black clothing would attract the greater attention. Put yourself in the place of the bee. Suppose you heard the call to repel invaders resound through the hive, and you hastened forth, not knowing what you would encounter. Would not that ominous black object challenge your attack? Its very unlikeness to the colors with which you were familiar would render it the more conspicuous. Would you not "jab" it without hesitation?

The question was raised by a young friend whether, if I wore a black suit with a white band around my right arm, the contrast of the white against the black would not be very marked, and whether the bees might not possibly sting the white band just as, previously, they had stung the black one. While I could not see how this could render the black any the less conspicuous, yet it seemed worth trying. The natural expectation would be, of course, that the larger

black surface would be more severely assailed. However, I went down into the apiary in a black suit with a white band of cotton cloth, six inches wide, around my right arm. When I opened the first hive, the bees attacked my pants and sleeves, but not the white band. This hive contained fairly gentle bees.

The bees in the second hive opened were exceedingly cross. When I lifted the cover the attack was really terrific. My pants, sleeves, and veil were assailed in great numbers; but the white band was almost wholly ignored. Some four or five bees penetrated beneath my veil, compelling me to retreat. But I could not rid myself of them. They followed me to the barn and into it, and I finally escaped only by throwing aside my coat and veil. I had this same morning, while dressed in white, opened this hive two or three times without any special inconvenience; but the black seemed to arouse the bees to frenzy.

If I could I would print it in letters a foot long—*Wear white when working among your bees.* I know of nothing among minor matters of beekeeping which will add more to your comfort and convenience.

At first thought it might seem as though black irritates bees in the same manner that red enrages a bull. But the evidence proves that this is not so. An angry bull will attack a red garment lying upon the ground as fiercely as when it is worn by a human being. Many a person, indeed, has escaped injury by dropping a red shawl or a red parasol. But a black garment suspended from a pole in the apiary or thrown on the ground receives no attention from the bees; and they will gather honey from black paper as readily as from white. Furthermore, the anger of the bull against red is in no way dependent on locality; but bees do not attack black animals at a long distance from the beeyard. Finally, since a black object absorbs all the rays of light, the physical cause of irritation, waves of ether, is absent. Therefore, bees do not feel any hostility toward black for its own sake. Black alone will not excite their anger. It must be accompanied by something else—namely, it must be worn by a living animal or human being near the beeyard, and the bees must be angry, irritated either by the object in black or by some other cause.

And now in closing, just a word in regard to Mr. Davis' idea that bees sting black because it is foreign or strange to them. It is true that black very rarely occurs among our wild flowers, although some species have black centers; and *Bartsia*, in Switzerland, has black blossoms, while black pansies and

tulips occur under cultivation. But the fields are green in summer and white in winter; the foliage of most trees is green in summer; and of the deciduous trees, red and yellow in autumn; the sky is blue and the rivers and lakes are green. Even the buildings are usually white, yellow, or red. The unlikeness of black, the marked contrast which it offers to the prevailing colors in nature, its strangeness, render it the more conspicuous; and it is this conspicuousness, distinctness, apparent projection in relief against the general background, that causes it, *under the conditions described above*, to receive a greater number of stings than white.

Waldoboro, Maine.

[The following report from M. F. Freeborn is given herewith as an additional proof that bees do discriminate against black.—Ed.]

On one occasion when I was overhauling a colony back of my store my smoker was not working satisfactorily. I was unable to give much smoke. They proved very active, and swarmed out until the air

was full of bees. Suddenly I observed a great commotion among my chickens. The Rhode Island Reds were in the air with the bees, and were terror-struck and crazed with stings. I stopped manipulating the hive and drove the poultry into the house and shut them in, a great number of bees still clinging to them. They were frantic. They flew against the door and windows, burst through, and were in the air again, and finally over the fence and under a large building which stood very close to the ground, so that a man could not get under it, so I had to abandon trying to save them, and closed the hive and let things quiet down.

That afternoon one of my neighbors picked up five hens, terribly stung, with heads badly swollen, and placed them in a small coop, more dead than alive. Next morning four of them had died. The other finally recovered; and three days after, two hens crawled out from under the building, and I nursed them back to life. The fifth day a poor Rhode Island Red rooster had crawled to the edge of the building where I could reach and pull him out.

The strangest thing about this affair is that my white Leghorns were unharmed. They flew about in the excitement, but seemed to be immune to attack by the bees. If this does not demonstrate that bees are attracted by color instinct, then I don't know what stronger evidence could be produced. Not a white hen was disturbed; but the poor Buttercup and Rhode Island Reds were unmercifully attacked

Nantucket, Mass.

M. E. FREEBORN.

STREAM OF WATER FROM A HOSE TO MAKE A SWARM CLUSTER

BY C. P. HENRY

I am sending a picture of my apiary of 40 colonies on a city lot in Hugo, Okla. I wintered on summer stands without the loss of a single colony. Some of my neighbors lost as high as 40 per cent. You will notice shade-boards on the front row. I placed these there to show how I treat my little pets, for which kindness they pay me well, as I realized a little better than \$6.00 per colony last year, including increase

My hose is shown, which I use to control swarms. It certainly works well. I herded a swarm and made it settle on the particular tree I desired to-day. Mrs. Henry does not like bees the best in the world, but had sufficient nerve for this performance.

In the background shows my supply-house and empty hives and supers.

Hugo, Okla.



C. P. Henry's apiary of 40 colonies at the back of a lot in Hugo, Okla.

A FURTHER GLIMPSE OF MOUNTAIN LIFE IN NORWAY

BY HAROLD HOVIND

I have been an honorary member of the North American Beekeepers' Association since January 28, 1893. I was before and after that time the editor of our Norwegian bee-paper (*Tidsskrift for Biskjotsel*) for some 18 years. I thought perhaps you knew it, therefore I did not write about it in my last letter to you; but as you published that letter in GLEANINGS, p. 117, Feb. 1, I may tell it now, and present myself as an unworthy brother in the craft to the American beekeepers—the most progressive beekeep-

you two views. The larger engraving [cover picture for this issue.—Ed.] is a most beautiful view, I think, taken from the corner of a little house on the mountain side opposite our own home.

The smaller picture represents an old Norwegian custom. In commemoration of memorable events the old Norwegian vikings or sea-kings in times long past raised big stones called banta, and carved them, so we do the same yet.

It is indeed edifying in the highest degree to see how many kind, warm-hearted people there are in the world. In consequence of my last letter, which you published, I have received many letters from America and Australia, full of kind words, and sending me some of their seeds, books, and papers, samples of honey, and samples of maple sugar, photographs, and one a beautiful arrowhead of stone probably found in an old Indian grave. I do not know how to thank these good friends giving such tokens of kindness to a stranger in a foreign country far up under the pole in the "land of the midnight sun." I have often had the opportunity of seeing that all such hobbies as bees, fowls, and other sorts of animals, etc., are the greatest blessing; for they bring people of all classes together in friendship and brotherly understanding, giving a foretaste of the time when there shall be love and good will among all men. Some of my truest friends and greatest joys I owe to such hobbies. Therefore we cannot do enough to encourage them in our children.

There are some misprints in my former hurried letter; but it does not matter much; but I have not two fruit-trees but a hundred though they are yet very small.

Tvedestrand, Norway.



Large stone kept according to the ways of the old Norwegian vikings (sea-kings), a custom still perpetuated to some extent.

ers of the world. It was my duty to introduce myself to my American brethren of bee lore long ago. Perhaps they will excuse me, and kindly take the hand I now extend them. We go to the American beekeepers for our best instructions.

Thinking that perhaps it may interest you to see some of picturesque Norway I send

THE PEACE OF A DREAM.

BY GRACE ALLEN

I am worn with the roar of the street,
 I am tired with the tire of the town,
 Where the noise and the heat seem to bruise me
 and beat,
 And the smoke is an insolent frown.
 But a mile or two out to the west
 There's a hive or two under the trees,
 And my feet take their quest to the quiet and rest
 Of the rapturous hum of the bees.
 For they go and they come and they go
 In the magic and might of a song;
 And the gentle hours glow, and my soul and I know
 It's the peace of a dream, dreamed strong.

WINTERING BEES IN MINNESOTA

Read before the Minnesota Beekeepers' Association Dec. 4, 1913

BY L. D. LEONARD

When beekeeping is conducted on a business basis, the hit-and-miss plan, under which most beekeeping is carried on to-day, will have to be relegated to the past. Why is it that one beekeeper manages his apiary in one way and another one in an entirely different manner? Simply because he has not yet established any system that is recognized as applying universally to beekeeping in Minnesota. If we wish to do all we can to further this industry, thereby adding to the wealth and prestige of ourselves and the State, we must begin to settle upon some fundamental principles regarding methods to be practiced here.

Our conditions in Minnesota are so different from those further south, where it is warmer most of the time, and where the winters are less severe, that we must necessarily make our own rules and do our own experimenting if we would be successful. I believe it will not be long now before a text-book will be constructed and published by our State apiarist wherein the best methods for us in this Northwest will be set forth. If such a book is gotten up I have no doubt that the individual members of the Minnesota Beekeepers' Association will be called upon to contribute from their past experience such facts as they may know beyond a question. I am going to forestall my invitation to write a text-chapter, and give it to you to-day—"How to winter bees in Minnesota."

The time to commence wintering bees in Minnesota is August 15th. At this time the bees will have been resting for at least two weeks. All the light honey will have been ripened, and should be removed from the hive by this time, if not before, whether in supers or brood-chamber, excepting frames with brood in them, thus making room in the hive for fall brood-rearing. For thirty days, or until Sept. 15, there should always be empty combs in the brood-chamber.

At this time, Aug. 15, every hive should have a feeder permanently attached, so that the sugar syrup can be fed any day or every day if nectar is not coming in from the fields. The object is to keep brood-rearing steadily going on for the next thirty days. In twenty-one days, or on Sept. 5, the young bees will be emerging from the cells in response to this feeding, too late in the season to wear themselves out working in the fields, consequently in the best condition to carry the colony through the long

winter. This feeding kept up for thirty days, or until Sept. 15, will bring the hatching season to a practical close on Oct. 5, with a hive full of young bees.

In the mean time, for ten days after Sept. 15, let the bees rest. Don't feed or disturb them in any way; but on Sept. 25 go through the hives, estimate how much sugar syrup each colony will need to carry it through the winter—the authorities say 25 to 30 pounds—then feed *all at once* whatever is needed. Syrup fed warm at this time should be made of two parts of sugar to one of water, with a little cream of tartar. Thus feeding will be over by the first of October, after which the bees should be let alone until the time for removing to the cellar.

By this method you have accomplished two important things: 1. Extracted *all* of the salable honey while wintering the bees on dark honey or dark honey mixed with sugar syrup, which improves it for wintering purposes. And, by the way, if you are an up-to-date business man you will feed granulated sugar, damaged for table purposes, but all right for winter stores, which may be had for 2½ cts.* per pound.

Now that I have outlined the method for feeding which I think best to use in Minnesota, I wish to describe the hive arrangements which I think are best adapted to our conditions.

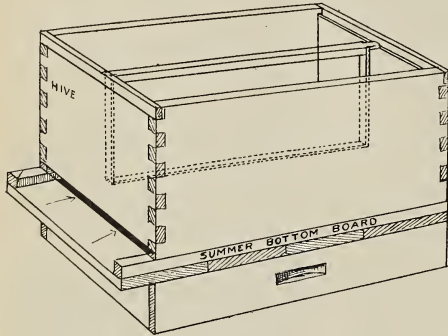
THE HIVE AND ITS ARRANGEMENT.

The ideal hive is not yet invented—the one good for all purposes such as producing a large number of bees when we want them, getting the most out of them in the matter of honey production and for wintering purposes. I know, however, that experimentation is going to be made next summer with some new hives, the principles of which are entirely different from these now in use. However, the hives we now have ought to be made the most of since we have them, which I think the beekeepers are not doing at the present time.

The hive-bodies and the frames are the only parts of the hives in general use that are fit to have a place in Minnesota. The single flat cover and the ordinary bottom-boards are, in my estimation, not fit, and should either be thrown away entirely or modified to suit our conditions. As regards the cover I shall only say that every hive

* Such a price does not prevail now, of course.—
ED.

should have a telescope cover reaching down as near the bottom of the hive as possible, with an inner cover with a $\frac{3}{8}$ -inch space between the two, and a canvas over the frames in cold weather. This arrangement tends to keep an even temperature in the hive in hot weather as well as cold, and will save wrapping of hives in spring and fall to keep them from sudden changes in temperature, which is one of the very important things to guard against.



I cannot lay too much stress upon this cover for the hives, for to me it seems only secondary to the hive itself. Bees can stand a vast amount of heat; but cold drives them into a cluster immediately, with consequent inactivity, hence the need of this telescope cover to equalize the temperature in the hives, thereby making it possible for the bees to spread out over the frames of brood at all times.

The bottom-boards in use at the present time are positively the greatest detriment to successful wintering in Minnesota of all the fixtures we have among our hive appliances. Such bottom-boards should be used only during the honey-flow, say from the middle of May to the middle of August, and should never be used in cold weather. Of this I will go more into detail presently.

I have said before that every hive should have a feeder attached Aug. 15. Now, this does not mean that one kind of feeder is just as good as another, because that is not true. I like best a plain box feeder, the same size as the hive and $3\frac{1}{2}$ inches deep, placed under the hive-body. At the front of this feeder is a partition one inch back from the end wall, and coming up flush with the top of the feeder, practically touching the frames as they hang in the hive. This makes an inch-wide space, the width of the hive, running from the frames down to the bottom-board entrance. This arrangement makes the feeder practically robber proof, as stranger bees coming into the hive must

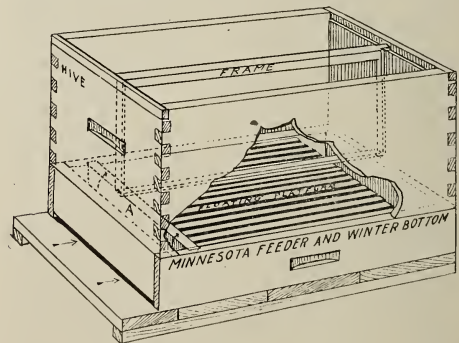
go up among the frames before they can reach the syrup. You can readily see how easy it is for the bees to defend such an entrance.

In the bottom of the feeder place a carefully fitted piece of wire screen just wide enough to spring into the lower corners on each side and round up to the top of the feeder in the center. For the eight-frame hive size it takes a strip 14 inches wide and just long enough to fit the feeder absolutely. Care must be taken that no bee can get under this screen. This is the best float I have ever seen, simple, inexpensive, and easily removed.

This feeder can easily be made in combination with a bottom-board by extending the bottom two or three inches beyond the front end and nailing cleats on the under side, which, when the feeder is turned bottom side up, will make the ordinary bottom-board, while the $3\frac{1}{2}$ -inch-deep feeder itself, now underneath, makes a fine hive-stand.

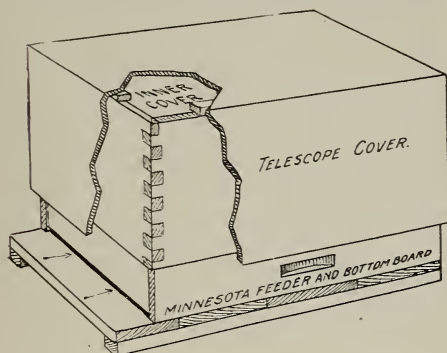
After this feeder is turned up and brought into play on the 15th of August it should not again be changed until warm weather next spring. I venture to say that nine-tenths of the beekeepers would say, "When all feeding is done Oct. 1, turn the feeder down and set the hive on the regular bottom-board, thus making the hive warmer." There is where they would make a mistake. It is not shallow space under the frames that keeps bees warm. It has just the opposite effect. It keeps them cold by crowding them up among frames filled with winter stores, spreading them out in thin layers until those on the outer edge perish in great numbers.

Within the empty box, $3\frac{1}{2}$ inches deep, all snug and tight under the frames, with no



chance for cold air to sweep under from front to rear, as with the ordinary bottom-board, the bees will cluster and hang down, as it is their nature to do, and none will be crowded out for lack of room. Thus will

they cluster all winter long, slowly moving from side to side and end to end of the hive as they feed on the stores above. Thus will they cluster in the spring, only gradually spreading out as warm weather comes on and the brood increases in the frames. After it is settled warm weather we may turn this box feeder over and use the regular bottom-



board again, but not before. This bottom-board and feeder combined I am going to name the Minnesota bottom and feeder. It originated here, and is, in my estimation, the best feeder and bottom that has yet been invented. The combination is simple, convenient, and inexpensive; and, best of all, it gives the bees a warm space below the frames in which to cluster in a natural manner during cold weather.

After feeding is over, the hive-body and the feeder bottom should be fastened together and the bees left to themselves to settle down gradually to the winter cluster until about Nov. 1, when they should be removed to the cellar. Do not wait for "just one more day" on which the bees will fly. If you do you will probably lose more bees on that day than you would in a month if they were in the cellar; and, besides, they consume more of their winter stores when outside. When the real cold weather comes, whether it is in the latter part of October or the first part of November, the bees should be removed to winter quarters where they can remain quiet.

REQUIREMENTS OF A GOOD CELLAR.

This brings me naturally to the question of the kind of cellar best suited to wintering bees. I cannot introduce the subject of cellar construction in a better manner than by telling you how my own cellar is made, for I have what I think is a model. First, it is not under a part of the house that is heated. It is under the shop. It might as well be away from any building whatever if it were protected on top from moisture.

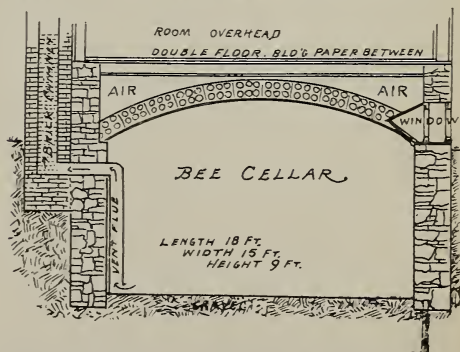
No bee-cellar should be where artificial

heat can reach it. It should be made so deep, and be protected so well, that it will not freeze in the longest and coldest winters we are likely to have. Also, it should not heat up in the mildest weather. In other words we should have a cellar that will not change in temperature more than fifteen degrees from summer to winter; and what change takes place should be very gradual.

The floor of my shop, which is the top of my cellar, is double-boarded, with building paper between, over six-inch joist, with building paper and matched lumber nailed to the under side. The side walls are made of limestone, 18 inches thick, 10 ft. deep. The floor is sand. A brick chimney for ventilation has its opening within a few inches of the floor. A window at one side three feet below the surface of the ground opens into a light-well which is capable of being packed with leaves or straw in the coldest weather. This window has three sashes to make more air-spaces and greater warmth. So far, with a few minor differences, this plan probably describes hundreds of cellars in Minnesota. However, this is not yet fit for wintering bees, and here is where the great mistake is made.

AN ARCH IN THE CEILING MADE OF ABSORBING MATERIAL.

In my cellar I have made an arch of double-air-spaced pyrobar blocks, starting 6½ feet from the floor, resting on a shelf in the side walls, and just reaching the ceiling in the center. This pyrobar is made of asbestos and plaster of Paris, and is easily handled. It is the next thing to proof against heat or cold; and if dry overhead it



will absorb and evaporate a large amount of moisture from the cellar. I cannot conceive how this material could be improved upon for overhead protection.

Upon placing the hives in the cellar, the telescope cover should be removed, the inner cover and canvas raised at the rear end of the hive, and a piece of section placed across each corner, thus providing for top

ventilation. Pile one hive directly on top of another. Leave windows and ventilators open until the temperature reaches 40 degrees, then gradually close up but do not allow the temperature to rise above this point if it can be helped, until they are set out again in the spring.

In the winter of 1911—one of the coldest winters we ever had in Minnesota—I had only fifteen colonies—not enough to create any heat of themselves in the cellar. The thermometer stood at 45 degrees when they were put in about the first of November. From this time to Jan. 15 the temperature gradually lowered until it stood at 32 degrees in the bottom of the cellar. There it remained the rest of the winter; and when I removed the bees about the first of April, with the temperature outside warm enough for flight of bees, the thermometer still registered 34 degrees in the cellar, a rise of only two degrees.

Every colony was in fine condition, with very few dead bees on the cellar bottom. In 1912, with 25 colonies it was the same story except that the thermometer stood at 34 degrees all winter instead of 32. This year (1913), since putting in 95 colonies the first part of November, the temperature has been exceedingly mild outside; yet the thermometer which registered 48 degrees the day after putting in has not at any time risen to more than 50 degrees (Dec. 1913).

Winter losses of bees in Minnesota have been altogether too great in the past. We must find some way to overcome this; and, judging by my experience the last two winters, with hives full of young bees and with sufficient stores, with a snug warm space under the frames in which to cluster, and a cellar constructed on scientific principles, I believe we have gone quite a way toward solving the problem.

Minneapolis, Minn.

STIMULATIVE FEEDING SHOULD BE DONE IN THE FALL

BY D. M. MACDONALD

Whenever this question is brought up for discussion we must recognize that a considerable amount of diversity of opinion prevails among beekeepers as to the how, why, where, and when this operation should be carried out. Many who look upon themselves as good and successful beekeepers underdo feeding; others overdo it, while very many entirely neglect it, even when taught by bitter experience that feeding would pay both cost and labor. Oblivious of the fact that the undertaking, timely attended to, or either overlooked or done out of season, may spell either success or failure, they go on sacrificing thousands of stocks yearly, and, of course, this means thousands of pounds which, but for pusillanimity, gross carelessness, or simply forgetfulness, might well go into the purses of men who could well accept more than they now receive. The question is broader and deeper than even this one of pounds or dollars because beekeepers are often content with weak or medium stocks when they might have nine out of ten of these laggards right in line with their best colonies, provided they gave even a modicum of thought and intelligence to the question of stimulation at the right time and in the right way. The broad rules apply equally on both sides of the Atlantic, although some minor points of difference may crop up with you and with us, chiefly owing to locality and the various sources of supply yielding in late fall.

When we come to the direct question of stimulative feeding to promote breeding, and provide our stocks with more bees and stronger forces, we discover a distinct cleavage of opinion. There is a marked line of demarcation, and we encounter two schools of thought whose beliefs and practices are diametrically opposed. I have been reading up all the authors on your side in my possession—upward of a score—and I find the above holds good. Both sides are emphatic in promulgating their own opinions, and frequently are intolerant of those of their opponents. Our literature shows as much diversity, and the doctrines are as forcibly asserted and maintained.

Here are two brief tenets embracing the whole matter in a nutshell. First, Dr. Miller writes in *GLEANINGS* for December, page 837, "I don't believe I ever gained by stimulative feeding." In "Alexander's Writings," p. 30, Mr. A. asserts, "I know of only one way to secure a good working force, and that is by stimulative feeding." Nothing can, apparently, reconcile these two divergent statements; they are like the two poles, as widely sundered as possible. Yet, as I have said, I can produce evidence from twenty prominent beekeepers, or leading writers of our bee literature, supporting both statements, and most of them clinch their theoretical statements by producing actual practical facts—conclusions deduced from evidence accumulated in the course of

their long experiences among the bees—the very best source from which reliable knowledge can be derived. Here is evidence facing us, much of it to be found in the pages of *GLEANINGS* during the twenty years I have been a diligent student of its pages. The one series of quotations (with which I will not burden your readers) positively confirm the negative statement I have quoted above, while the others, of no less bulk, wholeheartedly confirm the affirmative. Practically my own conclusion is that both are right, and, paradoxical though it may sound, both are wrong.

My friend Dr. Miller must excuse the bluntness of my assertion that he is wrong, because I hope to prove it; and I have two other reasons at least modifying the force of the contradiction. It is partly balanced by the statement that he is *right*, and, further, he has looked at only one side of the shield before declaring of what material it is made. I think he really means *spring* stimulation, which is another thing. His “ever” is, therefore, too emphatic and too sweeping. Again, Dr. Miller does not speak for the “school;” he is really recording a personal opinion. Another point is that Dr. Miller is a comb-honey producer (and a champion at that, as his average of 267 sections clearly testifies). I, too, work for comb honey, and I never stimulate in a general way, because I find that, without doing so, working for a late flow, as I mainly do, it would work evil and not good, bringing my bees to the crest of the wave at far too early a date for my late flow from the heather.

I know all that can be said against spring stimulation, and will refer to some points later; but meanwhile I will take the negative statement quoted above as a type of that school of beekeepers.

Stimulating bees does pay, and it pays well. I will at present specify three conditions under which it will prove a boon and a blessing to both bees and their keepers who practice it. First, sugar can be turned into *bees*. I feel certain the small lots laded out and placed on combs or foundation, each headed by a young fertile queen, a young virgin, or a nearly ripe queen-cell, about which the editor wrote not so long ago when describing the Root yard for increase, profited immensely by the steady stimulative flow considered an essential factor in helping them toward development. Don't we all, when making up small lots with two or three frames, stimulate? We work them up all through summer and early autumn, stimulative, to turn the syrup into young bees to encourage queens to lay

as rapidly as possible, and to secure not only more combs but also food sufficient for winter stores. I assert that, but for the stimulation to cause breeding, these originally small lots would never be able to winter successfully as independent units. Here is a case where stimulative feeding is, indeed, the determining factor between success and failure. The “profit” is almost entirely due to the syrup fed.

Secondly, given a weakling with a well-known prolific queen covering only one or two frames in early summer, I will take in hand to work it up to first-class form for my full flow, mainly by stimulation. Obviously it is suffering from a paucity of bees; and, likely, many of these are old bees. Adding more *old* bees from another weakling, as is generally done, would be a waste of labor. Give it a frame of just-hatching brood, or two if you can afford it, and you supply one of the elements hitherto wanting; *viz.*, nurse bees. The other factor necessary to success is stimulation. Your prolific queen lays thousands of eggs under the stimulus of the slow but steady increase, and the just-hatched bees are there to care for them in the larval stage. Here is another instance of the blessing of stimulation.

Thirdly, this autumn stimulation is *the* occasion where stimulative feeding works marvels, not only for the time being, but for the entire year following. Perhaps neither Dr. Miller nor myself have benefited much from this autumn stimulation, being comb-honey men, and because of being blessed with a late flow. Indeed, some years I have too much honey in the brood-body in September. The case is different with “extracted” hives, where the surplus has absorbed all but the entire fruits of the fall honey-flow and the brood-body is left with little if any winter stores.

Now, taking it for granted that in autumn every light colony must be fed less or more—some only a few pounds, others ten, and yet others twenty pounds, the question arises how we are to feed them to secure the most profit. Bearing in mind that young bees are an essential to successful wintering, and of no less value in safe “springing,” let us get these by autumn stimulation. The syrup slowly fed encourages breeding, as the steady flow keeps up the vitality of the queen right on from the cessation of the natural flow until we deem it time for her to cease laying. I am presuming that only ounces have been allowed daily during this period of stimulation, and that little if any of it has been stored, all of it going to make^e bees, or to keep the workers living from hand to mouth, without any meddling with

sealed stores. This slow feeding with its regulated supply is withdrawn from the hive, and a rapid feeder substituted. A large one is best because then the shortage of the 30 lbs. necessary to supply the winter stores can be given quickly, thus avoiding the agitation consequent on rapid feeding for any lengthened period. What we have secured is a powerful stock, the majority of the bees being young and full of energy when genial spring calls them forth after their long period of semi-hibernation to profit by each shining hour when nectar is to be had.

Experience teaches me more and more, as the years flit by, that it is a "faithful saying," and worthy of universal acceptance, that we should do all our spring feeding in autumn. "Millions of honey in our house," as Doolittle puts it, is the very best guaran-

tee that the bees will breed up in late spring and early summer to take full advantage of the clover or other main flow during June and July, when flowers yield most copiously.

In very many districts the season is over by the end of the latter month, and *then* comes the period when we can best and most profitably stimulate. Here is where I find myself in most divergent difference with the genial doctor, which leads me to dissent from his "ever" profiting by stimulation. It will also be seen that this development considerably differs from the "only way" in the Alexander book. I agree it is a *way*—not the only way—but the time makes a vast difference because there is not the great loss of bee-life almost certain in most springs, which, in the majority of seasons, more than counterbalances the gain.

Banff, Scotland.

HOW EUROPEAN FOUL BROOD SPREADS

Several Methods of Cure Considered

BY DR. C. C. MILLER

Dr. C. C. Miller:—I am having an experience with European foul brood which isn't agreeable. It isn't my first, but it *is* my worst, because it is knocking such fine crop prospects. If I were a beginner I should expect to be puzzled; but having made nuclei by the hundreds, and having been a shipper of bees by carloads for years, I must admit that trouble with disease knocks my conceit considerably.

The orthodox method of cure is requeening with Italians. But I have some Italians purchased of an excellent breeder last August, and the same per cent of them contract disease as the others. Now, my question is, Do any of your hybrids or Italians actually prove immune? and did you try shaking as a cure?

I believe I know the way it spreads. My bees are in pairs; and if one of a pair shows disease, the ones on the corresponding side of each adjoining pair soon show it lightly, and then it starts down a row. Now, I believe the nurse bees lick up the larval food from dead larvæ, go out to play, enter the wrong hive, feed larvæ, and start disease.

I put a very yellow Italian queen into a weak colony that had been queenless for more than three weeks without strengthening the colony, so as to observe results. All colonies on either side were dark bees. Within seven days after the Italian bees began to hatch I found yellow bees in hives on each side of the colony as far away as three hives. This bunch wasn't placed in pairs, so I missed part of the experiment.

Another question: Can you kill the queen in a fairly strong colony containing disease not too bad, give an Italian cell the same day, and expect good results? I am shaking all foul colonies, and carrying away the brood to avoid spread of disease. I really don't shake, but allow the flying bees to return to the queen and leave the rest with the brood. When I have worked out my experiments I'll write them up in GLEANINGS if they are successful.

California.

To say that "the orthodox method of cure is requeening with Italians" is putting it a little too strong. To be sure, at least one

writer has reported a *large per cent* of cure as a result of requeening with young Italian queens, and some seem to talk just a little as if one doesn't need to entertain the unwelcome European guest at all if one only has pure Italian stock; yet I think the most that is really claimed in general is that with Italian stock the disease is easier to keep at bay, and easier to cure when acquired, than it is with black or hybrid stock. And I believe that is in general true.

IMMUNITY.

You ask the straight question whether any of my hybrids or Italians prove immune. I don't know. Some of both kinds have remained free from disease; but how do I know that they have had a fair chance to become infected? Take the best of them, and introduce a frame of diseased brood, and I don't know whether or not they would become diseased. I suspect they would. Still, I have had them lightly affected, and then become sound without any treatment that I know of. That looks just a bit like bordering on immunity. If European foul brood should rage in a certain locality a few millenniums—possibly a few decades—I should expect the survivors to become nearly if not quite immune. And I should expect Italians to be more nearly immune than hybrids. One reason for that is that Italians are in general more vigorous than blacks or hybrids. It is just possible that is the only reason. It is also possible that Italians are more nearly immune independently of the

matter of vigor, just as a weakly man may be immune to smallpox while a man of great strength succumbs to it, merely because one has been vaccinated and the other not. It is possible that Italians have been through an experience nearly equivalent to vaccination. So my answer to your question is that I don't know whether any of my bees are immune to European foul brood, but I think not; and that, so far as I have observed, I have had no proof that there is any difference as to immunity between Italians and hybrids.

THE SHAKING METHOD.

"Did I try shaking as a cure?" Didn't I? Hundreds of empty frames boiled in lye, and not yet filled again with combs, are mute-reminders of the many combs that were shaken and the colonies that were treated after the most orthodox manner of shaking. But never again any melting-up of combs for me on account of European foul brood. It is a wanton waste entirely unjustified.

BEES GETTING INTO THE WRONG HIVES.

Your observations as to the mixing of bees in neighboring hives are interesting and important. Their importance relates to the introduction of queens rather than to disease. And right here I must make the rather humiliating confession that, while I was familiar with the fact of such mixing, I had always been of the opinion that it was the older rather than the younger bees that did the mixing. Your very yellow bees going astray when only seven days old is something of a settler on that point. The special point of importance with regard to introduction is this: When one has an apiary of dark bees, and introduces an Italian queen into one of his colonies, and then finds dark bees among the young bees of the colony with the Italian queen, he should be very sure no young bees have entered from other colonies before condemning his Italian queen as impure.

Another point of importance other than its relation to disease is your observation as to bees mixing when hives are in pairs—especially interesting to me as the father of the idea of placing hives in pairs. You say, "If one of a pair shows disease the ones on the corresponding side of each adjoining pair soon shows it lightly." For the sake of beginners, let me explain that more fully. In my apiary the hives are in pairs. No. 1 stands as close to No. 2 as it can without touching. Then there is a liberal space between 2 and 3; 3 and 4 are close together in a pair; then a space between 4 and 5, and 5 and 6 are in a pair. A bee belonging to No. 3 will not make the mistake of entering No. 2 or No. 4. If it goes wrong at all it

will enter No. 1 or No. 5, because No. 1 and No. 5 are on the same side of the pair as its own hive, and so look more like its own hive than either No. 2 or No. 4. From the center of No. 1 to the center of No. 3 is a little less than 6 feet; likewise all the other pairs are the same distance apart. Now suppose we place the hives singly at what we consider the most desirable distance apart. According to what has been said, if we now put another hive beside each hive already placed, there will be no more danger of bees entering the wrong hive than if we had left the hives single. In other words, putting the hives in pairs enables us to get *twice as many* on the same ground as placing them singly.

In actual practice the likelihood is that there will be less mixing with hives in pairs than when placed singly, simply because one is likely to give more room to a pair than to a single hive.

What you say about the way the disease is spread looks reasonable. Yet I am bound to say that my observations last year do not corroborate any too strongly that view. In May there were 16 cases of the disease scattered among my 83 colonies. According to your observation one would expect that, before the season was ended, the number should have been doubled or trebled. In fact, there were only 8 more fresh cases during the entire season. I am wondering if it may not be that my pairs were further apart than yours.

At any rate, it is safe to say that, where the disease appears, strong emphasis should be put upon the importance of spacing hives well apart, *and of putting them in pairs*. For putting them in pairs on the same area of ground just doubles our security against mixing and thus spreading the disease.

INSERTING A QUEEN-CELL OF ITALIAN STOCK SAME DAY THE OLD QUEEN IS KILLED.

Replying to your question, if you kill the queen in a fairly strong colony not badly diseased, and give a cell of good Italian stock the same day, I should expect a cure with few exceptions; and a virgin just hatched might be as good. But in a mild case, if the queen is good it is not desirable to kill her. In a bad case the queen is likely to be poor, and should be killed; but in a mild case she is not affected. I didn't kill a queen in any case last year. In a few cases I did as you say—took away all brood and young bees, allowing the old bees to fly back to the queen; but I gave some brood from healthy colonies, though I don't like the plan as well as the one I used in the majority of cases.

That plan was (keep in mind that the cases were mild) to cage the queen and leave her in the hive for eight or ten days before releasing her. That sounds simple, and it *was* simple—just caging the queen for eight or ten days—that's all. An average of a little more than 266 sections per colony from the 72 colonies, spring count, devoted to sections, is pretty fair endorsement of the plan.

Don't think, however, that I got no punishment for having European foul brood. The average for the diseased colonies that worked on sections was 232.29 each; for the colonies that showed no disease it was 272 or more. Even 232 sections per colony shows that one may do pretty well in spite of European foul brood.

Marengo, Ill.

HONEY-CROP CONDITIONS IN COLORADO

BY WESLEY FOSTER

There will not be anywhere near the amount of honey shipped from Colorado this year as last. The crop will not total more than 60 per cent of last year's shipments. The Arkansas Valley has not had a good crop generally. Around the western and upper end of the valley the reports are favorable—about Cañon City. In the Orday and Rocky Ford district a very light crop is reported. Little honey is being secured in Bent County, while Prowers County makes a fair report.

In the South Platte Valley a light crop to no crop at all is harvested. Northern Colorado has had a poor to good crop. In the Grand Valley, from Glenwood Springs to Fruita, there will not be over 25 per cent of the honey secured last year.

Montrose and Delta counties will have a small crop, probably 50 to 60 per cent of last year.

Southwestern Colorado will have a fair crop if the season holds on long enough.

The worms that were so troublesome in Montrose and Delta counties were very destructive also in the Montezuma Valley. They attacked the sweet clover in great numbers; but during the middle part of August they disappeared.

Northern New Mexico, close to the southwestern Colorado line, is having a fair flow from sweet clover.

Prices should materially stiffen when it is found how little shipping honey Colorado will produce this year in comparison with last.

My report in August 1st GLEANINGS was written about July 9, and was the best I knew at that time. I missed the actual conditions a good deal. The one who tries to give crop conditions before August 15 in Colorado is guessing on the crop, although he may get the prospects and conditions fairly accurate.

Boulder, Colo.

FEEDING TO CAUSE SELECT DRONES TO FLY WHEN YOUNG QUEENS ARE READY TO MATE

BY MAJOR SHALLARD

I recently noticed in the *American Bee Journal* an account of some mating-stations for queens in (I think) Switzerland. The queens were sent to these places for fertilization by choice drones, and returned when mated. Are these mating-stations necessary? I think not. Irrespective of the cost of transmitting to and from these places, I think (in fact, I am sure) that queens are damaged by transmission through the mails, and I should think the cost of any other means of carriage would be too expensive to be practicable.

Another argument against these stations is that such go-ahead people as your own have not adopted them. That the control of mating is under reasonable restraint is proved by the high percentage of purely

mated queens obtained by the breeders. Just how far queens go from home I do not know; but I am firmly convinced by my own experience that they are very largely mated to drones from their own apiary. I will give an instance which tends to prove this.

When I first came here I was the only one in the place who had Italian bees, and they were a source of interest to the people about, who had never seen yellow bees before. The people round about had a few boxes of black bees, and the trees also had a share. Under these circumstances, unless my queens were fertilized by drones from my own hives they must necessarily meet black ones; but my percentage was fully 75 per cent purely mated. I have also been

successful in mating queens to special drones, but under exceptional conditions. By keeping the queens in the mating-hives with a piece of excluder metal until 5 P. M., and then stimulating the hives containing the drones with a little warm syrup, I have been quite successful in getting them into the air together at a time when no other drones were flying. By adopting this method I have mated Italian queens to Cyprian drones, although I had only half a dozen of the latter in the yard. I was exceptionally well situated to prove that mating could be controlled under these circumstances; but

although I was isolated from all other yellow bees I was not from black ones. If I wanted to rear any very choice queens, and wished to be absolutely sure of what they mated with, I kept the drones in a queenless hive until all the other drones were gone; and by rearing queens thus late in the season I got them mated to those drones because there were no others. If, then, it is possible to govern the mating of queens as well as this, where is the need of mating-stations?

South Woodburn, N. S. W., Aus., Feb. 2.

STORES IN HIVES

BY R. F. HOLTERMANN

On page 407, June 1, P. C. Chadwick has some very valuable material in connection with the relationship between the strength of colonies and the amount of stores they have. There are, perhaps, many specialists in beekeeping to whom it is not necessary to point out that, if the bees and queen are to do the maximum of brood-rearing, they must be unstinted in stores. It is not only necessary that the colony have sufficient stores for their immediate requirements, but they must have more. This is particularly true of Italian and black bees. For some years I have seen that the best spring stimulative feeding the bees can get is ample stores in the autumn previous, and then the bees, in all our northern country, packed until the clover flow. The stores and the warm hive, warm every day and every night, will keep the bees rearing brood to an extent realized only by contrasting them with unpacked colonies meagerly supplied with stores.

Where there are plenty of stores and warm brood-chambers the only thing desirable to stimulate brood-rearing is to bruise a patch of honey when the bees are not gathering from natural sources.

I remember an incident of some fifteen years ago where a man had some bees in eight-frame Langstroth hives which he had managed according to some of the best methods, which meant getting all the honey in the supers, and leaving the brood-chamber fairly bare of honey at the close, and with comparatively little pollen, the result of a queen laying eggs, and the pollen in the average locality pretty well confined to a narrow circle about the brood-chamber. Then the colony was fed sugar syrup for winter in the quantity generally prescribed at that time. The following spring was one unfavorable for the bees. There were many cold days, and the bees did not have much

opportunity for gathering pollen or nectar, and we should only expect, with unpacked hives added, that these colonies did not build up very rapidly.

The same man had decided to test a house-apiary, and, to equip it with bees, bought some ten or more colonies in what we in Canada know as the twelve-frame Jones hive. It was a frame about 15 inches deep; and, owing to a let-alone policy, or owing to the size of the frame and brood-chamber, it had plenty of stores. The result was that the bees in the house-apiary gave results away ahead of those outside; but in my estimation this proved nothing in favor of running bees in a house-apiary.

Probably Mr. Chadwick is correct about colonies with ample stores responding to stimulative feeding. Honey should never be fed back, for fear of foul brood. Sugar syrup is not the best food for brood-rearing, and by the latter feeding the best results cannot be obtained. As Mr. Chadwick says, "Much honey is required to produce young bees, and this should be figured on every year when leaving the supply of stores for the following season may or may not give sufficient stores. I have had some pretty expensive lessons in providing stores from bees, and pursued the penny-wise-and-pound-foolish policy which many have advocated in the past, of estimating how few stores would bring the bees through winter.

PASTING LABELS.

One more comment upon the June 1st issue—Frank Pease, in connection with putting paste on labels. I know of no better way of doing this than to take a metal sheet, brush the paste over the surface, then drop the labels on it, and as you pick them off, the label should have enough paste to stick it.

Brantford, Canada.

WHAT TO DO WITH UNFINISHED SECTIONS

BY A. C. GILBERT

Undoubtedly there will be more partly filled sections, or sections of uncapped honey this season than for years past in consequence of the poor season. After extracting the honey from all such it is a good plan to save all the clean ones containing nice white combs for baits another season. After extracting the honey from them some beekeepers do not advise letting the bees rob the honey still left in them. As a general rule they contain more honey than ever thought of. Just set two dozen on the scales before and after feeding out, and note the difference in weight. It is surprising to see the amount of honey some contain. To keep such sections until they are needed, without turning more or less damp and dripping, is impossible unless kept in a very dry room kept warm most of the time. Not every beekeeper has such a desirable place, and consequently it is far the best practice to let the bees rob out whatever honey they may contain, then they will keep in any ordinary room or honey-house without being kept warm. When not fed out I have seen some sections turn so wet that the wood becomes damp. Nectar stored in such would not keep like that in nice dry combs.

There is not the least danger of starting

robbing if the feeding is done carefully and in the right way. I think the best way is to close the entrance so that only one or two bees can pass at one time. The hives or supers containing the sections should be somewhat isolated from the apiary. Strange as it may appear, one or two colonies generally do the robbing when only a couple of stacks of supers are placed out. Such colonies should be watched as the combs will soon become clogged with honey from one hive. I took out half the combs containing the least brood, and placed frames of foundation in their places. The foundation was drawn and filled with thick honey, mostly capped, as white as snow. The second set of frames of foundation was drawn and filled completely, and as white as the nicest combs during a shower of white clover or basswood honey. Have the sections so that the bees can have access to all parts. It is a good plan to set them in supers a little distance apart on slats or cleats; then if any honey happens to be on any part while extracting it will all be cleaned off, and the job will be complete and satisfactory every way.

Honeoye Falls, N. Y., Aug. 20.

AN IMPORTANT HONEY-PLANT OF KENTUCKY

Aster lateriflorus var. *thyrsoideus* (Gray), Sheldon, mistaken for white-flowered goldenrod, *Solidago bicolor*

BY BURTON N. GATES

This showy aster, whose name is somewhat in dispute, although given by Gray as it appears above, is credited as being found from New England to Ontario, Montana to Tennessee. It is now reported by Mr. James S. Johnson, of Langnau, Ky., who sent the writer early in September, 1913, a specimen for analysis. A determination has been made by Prof. A. V. Osmun, of the Botanical Department of the Massachusetts Agricultural College. It should be stated that this plant was described by Mr. Johnson as a particularly important honey-plant which he called *Solidago bicolor*, in his previous article, mentioned below. It is, however, not a goldenrod or *Solidago*, but an aster. The varietal form spoken of here is one of the many varieties of *Aster lateriflorus* (L.), Britton, which abounds in fields and thickets commonly from Nova Scotia to Ontario and southwest, blooming from August to Octo-

ber. It is extensively variable. Mr. Johnson mentions in GLEANINGS for 1912, pages 798-800, some of the more important features of this plant as a honey source. In recent communications he adds that he has sent specimens of the plant to almost every State, to Mexico, and Canada, believing that it may be valuable to the beekeeper who desires a late nectar-flow. He mentions the vigor of the plant despite the continued drouth of about four months in Kentucky, and gives full details in his recent article, p. 465, June 15. In his locality the plant begins to yield nectar about the 15th of September, lasting almost until November.

Beekeepers in the range of this plant might well determine whether their bees can utilize it. Coming so late in the season, and being a free nectar-yielder brings it into prominence for apiculture.

Amherst, Mass., Oct. 3.

Heads of Grain from Different Fields



THE BACKLOT BUZZER

When you read in the paper about these new-made fortunes takin' wing, you don't think much about it, but when your new five-dollar queen gets tired of your footin' manipulations and does the same, you do.

A Modification of the Somerford Method of Making Increase

My bees are in the more mountainous section of Western North Carolina, where we have the fruit-blossoms in the latter part of April, and whitewood (poplar) about the middle of May. It was my intention to raise a few queens and make increase of some twenty hives about the first of April; but for several reasons I was unable to get the time, and put it off until May 10 when I found that quite a number of hives had contracted the swarming fever, and upon going over the hives I found that ten of them had swarmed and in many cases queens had hatched. Of course this condition could have been avoided had I been on the ground; but as I am 150 miles off I misjudged the season, as I learned from the condition of the bees. Wintering was splendid, blossoms were earlier than usual, and I was rather backward. As my time was limited I decided, upon finding the conditions as they were, to make a small increase in this way: I merely went to those hives which had sealed queen-cells and cut them all out, saving from each hive one fine cell; and, taking this frame and one other and placing them in the center of a prepared hive and replacing them in the old hive with frames of foundation, first having located the queen and shaking most of the bees before the new hive

which I had placed close beside the old one, I then placed a super with full sheets of foundation on the old hive and left it in position. Now, as soon as most of the shaken bees entered the new hive I closed the entrance tight with grass and moved it to a new location some 30 feet distant and left the entrance closed for about three hours. I then removed the grass and contracted the entrance to about one-fourth, and found that in two hours from the time I removed the grass a few bees were bringing in pollen, and quite a good many were bringing in honey. The whitewood had just begun, and the bees were very busy on it. I judge that about half the bees shaken returned to the old hive; but upon investigation after the fifth day I found the new colonies about as busy as any of them. The old hives in four out of nine cases were working splendidly in the supers placed on five days before.

I tried the experiment a little differently with one hive as follows: This hive was very strong, but had not contracted the swarming fever so far as I could detect, only a few young drones unsealed being in the hive, though the hive was filled to the tenth frame with brood. I selected a fine queen-cell from another hive, took this and three frames of brood and placed them in a new hive as I did in the other cases; located the queen, and shook most of the bees before the new hive and proceeded to put the old hive in shape and placed a super as I did on the others. I then closed, as I thought, the entrance to this hive as I did the others; but upon returning after three or four hours I found that I had, without knowing it, slipped the hive forward on its bottom-board until the hive overlapped the side strips forming the entrance about $\frac{3}{4}$ of an inch. Upon examination I found that nothing but young bees were on the combs, and not enough of them to keep the brood warm, I feared, as it was getting very cool that day, and, as it turned out, went nearly to forty that night. I took the frames out of this hive and gave them to two hives I had made the day before, as I did not consider the operation successful. The colony from which I took the brood, with the exception of the frame containing a queen-cell which I destroyed upon giving the frame to the new colony (made the day before) immediately commenced work in the supers. After placing supers and getting my bees in condition so I could leave them a few weeks I returned to this city. With the exception mentioned, all the new colonies were doing splendidly one week after they were "made."

Our honey crop consists of whitewood, sourwood, aster, the season coming respectively.

Knoxville, Tenn., May 29. JOHN EWBANK.

Trouble with the Smoke Method of Introducing.

My bees this season are certainly not normal or else their education has been badly neglected. In attempting to requeen and Italianize a new apiary I stumbled on to some nuts that were hard to crack. Some colonies especially persisted in refusing queens by the mailing-cage method, no matter how they were prepared. Some, queenless for weeks, repeatedly balled their would-be foster mother, and even destroyed virgins hatched in their own hive—these from protected cells.

The Miller smoke method was then tried, with no better success, and we have come to the conclusion many things happen that are apparently inexplicable, even if we have been beekeepers for forty years.

This season nearly the entire work was turned over to my associate, an enthusiastic beginner and a painstaking one. When the last queens arrived,

two colonies were hopelessly queenless; the others were dequeened in the early afternoon, and the new queens were run in at dusk. All details were carried out strictly according to directions by Miller. So particular was the operator that his watch was placed on the hives he was manipulating. Method was this: The hive was dequeened; and in a few hours, or as soon as the bees had settled down, a few puffs of cool smoke were forced into the hive, which was then closed for 15 or 20 seconds (Miller's instructions). The new queen had been removed from the mailing-cage, and placed in a Miller introducing-cage, which cage was easily pushed into the entrance, and the queen readily entered. The hive was then closed for twenty minutes, and the entrance partially opened. The first two hopelessly queenless ones accepted their queens and workers. From the next two, the workers began carrying out the attendants of the queen in 20 or 30 minutes. This was contrary to reports made by Miller, and we concluded something had been overlooked.

The next lot was treated the same way, but after smoking and closing the hive a good rapping was given it. In each and every case the bees roared and were certainly much distressed. So much for instructions. It made no material difference, as workers and queens were lugged out before morning, so that, out of the entire lot, we saved but two. Up to now these two colonies have not yet destroyed the queens or workers. Can you blame us for being dubious, or are we wrong in our manipulations?

Queens we are ordering to-day will be introduced by the caged-comb method. This is the only method with which we have been successful this season. Cages used were about 4 x 5, placed on an old comb, the new queen and some workers in the cage. In some instances the queen has laid, although caged, and in no instance have we had any losses to report by this method.

Portland, Ore., Aug. 10.

E. J. LADD.

This was referred to Mr. Miller, who replies:

Did you ever notice that the strange, the weird, the uncanny, always happens to the novice? Your professional queen-men succeed in thousands of cases, while Mr. Ladd's novice fails in his few.

From Mr. Ladd's letter I judge the novice has missed much by striving to be over-particular. I have carefully studied his two letters, and I think the trouble probably is due to too much smoke, for one thing.

His statement of "colonies queenless for weeks" means very poor beekeeping. From what he says of balled queens, destroyed virgins, etc., I would diagnose it as too much meddling. I have been through all those experiences, and they were due to my interference. I do not have such trouble nowadays because I am too busy.

As to acceptance of the queen and the non destruction of cells, if they had been left undisturbed they would have been destroyed later, usually just before the young queen begins to color.

As to loss of queen when introducing a few hours after dequeening, a novice rarely, except by accident, gets out a queen without a lot of disturbance, and the colony does not settle down in a few hours. They may be quieter; but my advice as given (to novices) is, wait about twelve hours or over night.

I have instructed many persons in bee culture, and the proportion who have the faculty to see and grasp the essentials is exceedingly small. Only to-day I was in a yard in a bad turmoil over a severe case of robbing. The owner and another experienced man and three beginners were there, and I had a splendid demonstration of how one man fails to see, when shown, conditions glaringly patent to others. It was a yard of thirty or more full colonies and many nuclei, and was about the liveliest bee-spot I ever got into. It was chaos, and dangerous. Be-

fore I finished, quiet reigned; every colony was successfully defending itself, and I had no difficulty in running a queen into a queenless colony recently badly robbed; and knowing and showing, without opening, that queen was accepted.

There is very much too much overhauling of bees; and bad matters, as in the above yard, are often made worse thereby, and it is quite unnecessary. I was shown two colonies said to be hopelessly queenless (had been examined half an hour before), and one of them had been stripped of every scrap of food, all larvæ sucked dry and pulled out, and even sealed cells torn open, and the young partially consumed. I looked at the entrances for a few moments, and then knew one had a fertile queen, and felt sure of the other as soon as I looked at the tops of the frames, and then I showed them the queens.

Any one can do the same if he will study the behavior of the bee; and then we shall have less freak happenings. I will write this experience up for you soon, as it is too valuable to be lost.

I suggest to Mr. Ladd that he have his novice do less overhauling, and try less smoke—just as little as will make them roar, and postpone his introduction of queens to the next day after dequeening. He was working with blacks and hybrids; and even the expert does not find such queens any too readily; and I suspect that the novice, though never so enthusiastic, "started something."

Providence, R. I., Aug. 30. ARTHUR C. MILLER.

Tin Spout for Trapping Robbers in the Hive They are Robbing.

On page 648, Aug. 15, I notice the plan for stopping robbing and disposing of robbers. Last fall (1913) I discovered that the bees were robbing a weak colony. I went to the shop, cut a thin board just right to fit over the entrance, bored a $\frac{3}{4}$ -inch hole through it close to one edge, ran a tin spout through the hole, $\frac{3}{4}$ inch in diameter at one end and $\frac{1}{4}$ at the other. I pushed the spout in at the entrance (the deep side of the bottom-board was up), shoved the board up snug against the entrance, and tacked it fast. The field bees and robbers fairly tumbled over one another to get through the spout. In a short time not a robber was to be seen in the camp. I left them there until the robbers united with the colony, then turned them loose. It left that colony too strong to be robbed.

St. Joseph, Mo., Aug. 21.

S. A. MATSON.

A Suggestion for Avoiding Confusion in Apiarian Terms

In regard to Dr. Miller's "Straw" on page 447, June 15, on Smith's and Jones' honey, I have a suggestion to make that I think will work well if made a rule. The number of pounds of honey should have the letters x or c added to indicate whether it is extracted or comb honey; *e. g.*, Smith gets 50c pounds of honey per colony, and Jones gets 60x pounds per colony. In reading these statements the letter indicating the kind of honey is not *read*; it is *seen*, and conveys the information without its being spoken unless you are reading aloud for another's benefit.

In writing of foul brood also confusion usually exists because the reader does not know what variety of foul brood is being discussed. It seems to me that it would be well to adopt as a rule that the initial indicating the kind of foul brood be placed before the word: Smith has lost half his bees with E. foul brood. Jones has a few cases of A. foul brood in his apiary.

(REV.) ALSON W. STEERS.

Nooksack, Wash., June 24,

A. I. Root

OUR HOMES

Editor

Thou shalt not kill.—Ex. 20:13.
Love ye your enemies, and do good and lend,
hoping for nothing again.—LUKE 6:35.

They shall beat their swords into ploughshares,
and their spears into pruning-hooks: nation shall
not lift up sword against nation, neither shall they
learn war any more.—ISA. 2: 4.

For some time back I have been expecting, and I do not know but *predicting*, here on these pages, that the affairs of this world are approaching a *crisis* of some sort. I felt impressed by this in viewing the improvements and progress that humanity has been making during the last fifty or sixty years. It was my privilege to see steam begin to make its way, not only in plowing the seas, but in traversing the land. With a boyish home-made apparatus I went around to schoolhouses exhibiting a little home-made motor run by an electric battery, and predicting that this new force would out-rank steam *itself* in just a few years. I watched and waited, and saw it take *thirty* or *forty* years, instead of three or four. I saw the electric wires for almost the first time, strung on poles throughout Ohio. I was also permitted to experiment with the telephone about as soon as its invention was announced. I have also lived to see messages sent by electricity without *any* wire; and within the last ten days a friend showed me an aerial tower in our neighboring city of Akron that he said had already received wireless messages from Washington. I have also lived to see radium upset scientific theories, and rejoice to have had a tiny spark of the wonderful agent in my possession, where it continues to be a *veritable perpetual motion*, sending out a bombardment of stars or meteors day and night, summer and winter, without any diminution or cessation. I have asked through these columns what is coming next. Perhaps I should mention, also, that it has rejoiced my heart to see the wonderful progress being made in conserving and saving human life. A "sane and safe Fourth of July" has just been inaugurated. I believe it started in Cleveland, a great city close to my Medina home.

Although our great physicians and surgeons have been criticised sometimes rather severely, I believe all reasonable people must admit that there has been a great saving of life in this direction. The ancient practice of blood-letting has been proved to be a foolish fad if not a fraud, and *true science* has, at least as a rule, taken the place of humbug science and teachings of quack doctors. I have lived to see God's precious word spread to the uttermost points

of the earth, in nearly all the languages spoken in the world, and sent out by the millions. Cannibalism has almost if not quite disappeared, and I might almost say the same of human slavery. To bring it about cost a *terrible* war, it is true, and a fearful shedding of innocent blood. Some people tell us, and, in fact, *have been telling* us, that the matter could have been settled without bloodshed away back fifty years ago, but we did not *know* any better.

Now, friends, the fearful question now is, do we know any better *now*? We are all hoping that here in the United States we *do know* better; but right *here* in *Ohio* a fierce war is going on just now. There has been a little bloodshed already, and there may be more of it before intoxicants are banished. While schools and churches are taking the place of savagery everywhere, and giving protection to the honest wage-earners, Satan is already at work, and sometimes he startles us with the conviction that *he too* is making *new discoveries* and short cuts. We become careless and indifferent, and lull our consciences to sleep, and try to persuade ourselves *we* are safe here in our quiet and peaceful homes. I have neither time nor space here to mention dynamiting that is continually cropping out.* Now for this terrible European war.

On this 3d day of September the latest news day after day is—*more bloodshed*. I have just caught a glimpse in a daily paper of the news that after one single conflict they buried *6400 bodies*—bodies of *young* men, the flower of the nation; and we have been told at different times that probably many of these poor victims did not know what they were fighting for. In fact, does any one really *know* why almost half the population of the world is engaged in killing each other? Their farms and crops are neglected, and even burned by their own hands if not ruined by the weather, and starvation may kill more than the sword and cannon if these people do not soon come to their senses. By the way, I read somewhere that just *eight* men, possibly *nine*, over in Europe, brought on the war, and that these nine men, if they had a mind to, could stop it in an instant.

I told you a little time back of the text I

* Little did I think when I was asking what "great event" would stir the world next that it would be some of *Satan's* inventions and planning—a scheme that will not only *not* conserve human life and health, but result in a wholesale murder unprecedented in the history of the world, and a murder, too, of the best youth and manhood (physically) that the whole world can produce.

found in that microscopic photograph. I told my mother at the time I discovered it that it was an "unexplored region"—that if people would stop and listen to these words of the Savior it would not only settle neighborhood troubles but the troubles of State and nation. I do not think I went far enough. If the people in power would consider and listen to the second of my texts, and follow it, it would end the war in a twinkling. Let us look at it again—"Love ye your enemies; do good and lend, hoping for nothing again." Let me digress a little.

Right over in the adjoining county of Summit, two farmers quarreled over a line fence, or at least I think that was the trouble between them. They engaged lawyers. Their families and their neighbors sided in, some on one side and some on the other. One day one of the two started to town with his wife and a horse and buggy. The other neighbor met them part way coming home, also with a horse and buggy, with his wife. They stopped their horses and commenced to talk. Then the two men gave the lines to their wives, and got out of their buggies. It seems they both carried concealed weapons—please note this; and Satan put it into their heads that they could fix matters all up nicely by *fighting a duel*. They *listened* to Satan instead of the Lord Jesus Christ, who gave us this wonderful text. Both men were shot dead. Two poor widows sat in their respective buggies, and two families of children were without a father. Now, can anybody in *this whole wide world* tell me what was *accomplished* by fighting that duel? Did they fix the line fence? Did they make pleasant relations in the neighborhood? and were those two widowed women *satisfied* or helped in any way? We read of demoniac possession in olden times; and skeptics have for ages ridiculed the idea of being "possessed by devils." If those two men were not both possessed of a devil, what else *could* have made them so foolish?

Down in Florida recently two other men quarreled about a line fence. They spent years and much money in fighting each other. Finally one of them moved away, leaving the matter still unsettled. A Christian man bought the farm, and the neighbors watched to see him take up the fight. This is the way he fought his enemy: He went to his neighbor and said, "Neighbor, I am a man of peace. I would rather lose a little bit of land than to *quarrel* with a neighbor. Just put that line fence over on my side *ten feet*, and I shall be perfectly satisfied."

What do you think happened? His opponent, who was ready to bristle up and

fight to the bitter end, all of a sudden turned "about face," and replied something like this:

"My friend, if that is the sort of man *you* are, I am not going to be outdone in generosity. Put the fence over on my line *ten feet*, and I shall be satisfied."

Was not that putting that little text in force with a vengeance—"Do good and lend, hoping for nothing again?"

Now, some folks may think me foolish; but I am just foolish enough to believe this great war could be settled in the same way! and may the Lord be praised there are many other good people of the same opinion. It has rejoiced my heart to see all sorts of periodicals take exactly the ground I do. Let us go back a little.

How did it come about that those two Summit Co. farmers should each be *carrying a revolver*? If it had not been for those revolvers, some good Christian man might have converted them to the gospel of Jesus Christ instead of letting them remain in the dominion of Satan. There is a law now against carrying concealed weapons; and I wonder if it would not be a good thing to stop carrying weapons of *any* kind.

While I have been writing this Home paper I have been thinking of the time when some veteran of the Revolutionary War showed us children a sword and its scabbard. Perhaps they got it down from the garret. Children, of course, would want to know what the sword was for. Could any father, at least nowadays, have the heart to explain that swords are made to use to *kill folks*? They have no other use. My third text, however, speaks of one use. I am afraid, however, they would be too slender and frail for modern agriculture. By the way, friends, have any of you got a sword hanging up in the garret? Break it up and pound it up, or fix it so the children will not know that it was *ever* used for killing folks. I am ashamed to say I once used to sleep with a revolver under my pillow. I think Mrs. Root persuaded me to get rid of it, and I have never touched a revolver since, and that was years ago. Just notice how many children are killed every year by playing with revolvers and guns. Shall we not get rid of them? Is it true that bayonets, daggers, revolvers, stilettos, and all that sort of "truck" open the way for quarrel and murder? They are the implements of the midnight assassin. Do you think I am peculiar or cranky? See what the greatest daily in Cleveland, the *Plain Dealer*, has to say about it:

FALSE INSURANCE.

Arming to keep the peace, a favorite oratorical policy with the jingoes of all nations, never before

appeared quite so absurd as at the present moment. It ought never to have currency again, even among the thoughtless, after the present troubles in Europe.

Every power in Europe has been arming itself for years—to keep the peace, of course. Great armaments were to prevent war. Billions were spent for this supposed "insurance."

And now Europe is war-mad from end to end. The continent was made a tinder-box by all this "arming against war," and a madman in Bosnia set a match to it. Like a spark dropped into a roomful of explosives, it starts a conflagration which no one can control.

A man armed to the teeth with a chip on his shoulder invites a fight. So does a nation similarly equipped. And a nation is no more justified thus to arm herself and go out seeking trouble than is an individual.

The next time some minister or legislator argues for bigger armaments in order to avert war it will be in order for some one familiar with the events of the summer of 1914 to call him to his senses. One way to prevent a tinder-box fire is not to provide the tinder-box.

While we are about it, here is something else from that same paper:

The population of the world has been estimated at 1,623,300,000. The population of the countries already at war is considerably more than half of this total.

It is a world war.

And in the area of fighting it is true to its scope. Europe is ablaze, north, south, east, and west. There have been battles in Togoland and on Lake Victoria, in the heart of central Africa. Within a week or two, war will make the Orient lurid.

In the midst of it all, the United States follows its own straight path, but little disturbed by the almost universal conflagration. The republic of the West feels horror and pity, and realizes more than ever before its destiny as the world's foremost exponent of peace, of life and let live; but the vocations and avocations of its people, their daily pursuit of happiness, have known no change.

Now, here is something I clipped from the *Union Signal*:

It seems incredible that such a conflict can be precipitated in this century, which we have fondly believed heralded the establishment of world-wide peace; and we can only hope and fervently pray that a miracle may still be wrought, and that some of the horrors of the present situation may be averted.

Amen to the above! I am looking, watching, and praying for that "miracle."

Another thing that pleases me is to see that our agricultural periodicals, almost without exception, are deploring war. Here are some clippings from *Successful Farmer*, of Des Moines, Ia.

ANOTHER LIE NAILED.

The halls of Congress and the platforms of Chau-tauquas have rung with the bold statement time and again that a big standing army and a powerful navy insures peace.

Was there ever a spot in all the world where nations were so prepared for war as in the war area of Europe? Being prepared is the only thing that made possible a war on a week's notice. Had there been no great armies and navies there could have been no war precipitated over such a trivial cause.

It is the "gun-toter" who is a menace to the safety of all good people, be the gun-toter a villain or a nation. If Europe had had as rulers a few "schoolmasters" gifted in the art of "watchful

waiting" there would not now be the terrible story to tell of wars among so-called civilized nations.

It would seem that the human race is in travail, preceding the birth of international peace. Just as the saloon and gambling and white slavery are making one last and desperate fight for existence, so it seems that the war dogs are not putting on the last big show.

Judging the present by the past, we can make a pretty sure bet that the war trust is back of international troubles.

The makers of cannon and armor plate and powder can't sell much of their wares when the war dogs play together in international peace, so it is to their interest somehow to keep nations spitting in each other's faces.

In every nation is the lobbyist of the war trust, inciting legislative bodies to appropriate more of the overburdened tax-payer's money for the building of battle-ships and fortifications.

"War is hell," and we want to burn that fact into every reader's soul. It never becomes any thing else, no matter how our heart throbs with so-called patriotism when the army marches by. War is devastation. War is the life-long suffering for the ones who are spared by war.

In closing this Home paper I wish to make a quotation from Sir Walter Scott's writings of a hundred years ago. In the book entitled "Ivanhoe" a wounded knight lay entombed in his prison. He was not able to get up and look out of his grated window, but asked "Rebecca," a Jewess, to station herself at the window, and witness the conflict going on outside. When she turned away, thinking she could not bear to see what was going on, he implored her to turn back once more and tell him what she saw; and as she looked she gave utterance to the following which seems to be almost a prayer:

"Great God! Hast thou given men thine own image that it should be thus cruelly defaced by the hands of their brethren?"

In defense of the expense of our mammoth men-of-war, we clip the following closing paragraph from a very valuable article from *Collier's Weekly* for June 6. It was printed, keep in mind, before the European war started.

As with individuals, so with nations. As long as certain nations go armed in a wild and savage world, just so long must the enlightened nations go armed. The wild and savage world, with its silly man-killing devices, is doomed to pass. But until it passes, it would be silliness on the part of the enlightened nations to put aside their weapons.

An international police force and an international police court will mark the beginning of the end of war. But as yet these two institutions have not been founded. So the United States will be compelled to go on building \$15,000,000 battleships and training its young men to the old red profession.

The point is, when wild and savage conditions make it imperative for a man or nation to go armed, it is equally imperative for the man or nation to go well armed. Ever has the sword, in the hands of the strong breeds, made for wider areas and longer periods of peace. In the end it is the sword that will make lasting and universal peace. When the last savage nation is compelled to lay down its weapons, war will have ceased. War itself, superior war if you please, will destroy itself.



G. C. Brocaw's house as it was first built, and a view of it after he put on a little addition and some porches.

I close with the following closing words from the *Missionary Herald* for September:

One hope, vague, perhaps, but real and inspiring, cheers the heart at this black hour; namely, that out of the horror of so mad a conflict there may eventuate a disciplined and saner world; that when this house of cards propped by armaments and fleets has fallen in confusion, a more stable and Christian structure shall arise to express the civilization of the twentieth century.

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A WINTER HOME IN FLORIDA; THE FLORIDA
REAL-ESTATE BUSINESS, ETC.

Shortly after we built our cottage at Bradentown, Fla., a beekeeper and his wife came from Wisconsin or Minnesota to visit us, and they were so much pleased with the

idea of passing their winters in Florida that, after looking around quite a little, they bought a piece of land almost in town, but quite close to the salt-water bay. They got the land cheap because it was so low at times that the salt water encroached on a small part of it. Let me explain here that real-estate men in Florida (as a matter of course) are inclined to be jealous of each other; and after one of their number has made a sale the others—at least some of them—who do not make a deal, will cause the purchaser to become dissatisfied. My good friend Brocaw, by coming in contact with some of these meddlesome people, became very sick of his bargain. They told him it was full of alligators, and the salt-water marsh or swamp would not grow any thing. After he had hired some colored men to clear it up partly, somebody said his deed was faulty. I told him not to listen to the gossips, but to go on and improve his place. Under the circumstances he did not feel like investing much, and accordingly he built a little square house. The reason he built it two story was because one roof



E. A. Reddout, with a picture of the cottage he built with his own hands.



A glimpse of the unreclaimed forest in Manatee Co., in the vicinity of the stream at the bottom of my garden.

would cover two stories as well as one, and he fixed it up as cheaply as he could so they could live in it a little while. See picture.

One of the first things that he did was to plant a great lot of bananas. I thought he was getting wild on the banana business. He planted out considerable other stuff around the cottage, or around the central part, as seen in the picture, and went off north, and the place was allowed to take care of itself for some little time. Well, just north of his banana-patch a neighbor established a chicken-house and some duck-pens. Whenever one of Florida's big rains came it washed the poultry manure down on to the bananas, and the effect was magical. They grew tremendously, and a neighbor sold enough bananas while he was gone away up north to pay good interest on the money; and the salt-water marsh, after the ditches were dug, not only grew bananas but sweet and Irish potatoes and a lot of other stuff. Later on there was a speculation in selling building-lots and putting up nice residences right close to his "foolish investment" as some people called it when he first made it. When he saw how things were going he took courage and put on the porches and a little back kitchen as you see; and now it is one of the prettiest little cottages for a small investment I have ever come across. You get a glimpse in the picture of himself and his good wife. I think they must be feeling happy because of the beautiful flowers and fruit growing on that investment, and from the fact that

he could probably sell it now for five times or more what it cost. Now, you need not think such investments turn out that way every time. Bradentown is growing very rapidly, and it *happened* to "grow" right over where he was located. In fact, while I write a steam-dredge is scooping the sand out of the bay and piling it up on the shore so as to make new dry ground where before it was only a wet marsh or salt water. Residences right on the edge of the bay where you can have a boat-house and launch sell at a high price.

While I am about it I might mention another beekeeper, Mr. Reddout, who comes down every winter from somewhere in York State. On his first trip he put up a tent right back of my garden, and lived there all winter. Last winter, however, he decided to have a house of his own, even if he is not as yet a married man. I have forgotten what it cost; but by doing the work himself I think he was only two or three hundred dollars out in cash. Here is a picture of the little cottage with himself in an easy-chair.

My impression is, that the structure in the background is a tent where somebody is living until he can get a house built. Such things are frequent in and around Bradentown, and I believe they get along very well in a tent except when we have cold storms. But this does not happen very often.

Now, above is another picture giving a glimpse of the wild woods a little up the stream, where my ducks have their playspell every day in the year.

HEALTH NOTES

"LOOK OUT FOR PICKPOCKETS."

I suppose our friends take it for granted that the only danger from pickpockets is getting into a big crowd of people; but the kind of pickpockets I have in mind that I am going to talk about just now are the ones who get your money when you are in your own home by your own fireside, far away from the wicked city or the crowded fairground.

I have been swindled and taken in pretty much all of my life, and I do not know but I shall continue to be swindled. Again and again I think I will learn better; but as fast as I learn better the pickpockets learn to be sharper. Here is a little story I have to tell you now which illustrates very forcibly the ways *some* people work.

I have had a great deal to say about "robbing sick people." Inasmuch as I have mentioned my deafness many times in my writings I presume I am marked by the pickpockets who make their living by bleeding deaf people. In fact, I am led to believe that they hunt up names and pay people for hunting up and giving them the addresses of those who are hard of hearing. A few days ago one of my good friends mailed me a booklet of about 16 pages. I think he said he *found* it somewhere. I am sure he sent it to me with the best intentions. It was written by a woman who had been deaf, but recovered her hearing. I made up my mind before I began reading it that it was an *advertisement* for some new medicine or treatment. I had heard about getting people to go to the drugstore for something that no druggist knows anything about; therefore I telephoned my druggist to know if he kept such a medicine as "fluid enserol." He replied he had it in stock, and had kept it on sale for some time. Then I ventured to read the booklet all through, and I gave it to Mrs. Root to read. It was almost plaintive in its description of her trouble with her ears; but as her address was not given at the end of the book one was almost forced to believe it was really an honest effort to help people who are troubled with defective hearing. Let me make a few extracts:

A WOMAN'S STORY.

If it were not for the hope that this little story which I am meaning to be published would not benefit the reader, nothing would tempt me to have it printed, but I do hope that every one who reads my story will receive benefit from so doing, and all I ask in return is that they spread the good news which my story contains.

It was something over a year ago that I had reason to visit New York City personally, and while

there I thought I would make one last effort to see if something could not be done to relieve me of the head noises.

I went to one of the hospitals and asked to see the most expert physician who could give me his attention. I was directed to one, and after giving me a thorough examination, and after listening to as much of my story as he had time to, he finished by telling me to take the prescription which he had given me, and have it filled at the drug store, and use it according to directions.

I shall never forget the time when I sat in a chair and found that the head noises had almost disappeared. It was such a relief that I broke down and cried.

If I attend the divine services, and sit away forward in church, I can hear nearly every thing that is said. This is so much better than I could a few years ago that I am thankful, oh, so thankful! for this great relief.

This is the copy of the prescription given me:

Pure glycerine, $\frac{1}{2}$ ounce; fluid enserol, 1 ounce; boiled water, $2\frac{1}{2}$ ounces. Mix.

Put one drop in both ears, night and morning.

Wet the forefinger, and rub the solution full strength, behind and below the ears.

Pour ten drops of solution in one-fourth glass of warm water, put some in palm of hand, and snuff up the nostrils, night and morning; also gargle the throat with the same strength solution as used in the nostrils, night and morning.

Please note she mentions attending divine service, indicating that she was a Christian woman. My good old father used to get uncharitable, and I can recall the expression he sometimes used about "using the livery of heaven to serve the Devil in." I went to the drugstore and asked them to put up the prescription as above. As glycerine and "boiled water" are cheap I supposed, of course, that fluid enserol would not cost very much. When he handed me the little bottle I threw down fifty cents; but he replied something as follows:

"Mr. Root, perhaps you do not know that this *enserol* is a very expensive medicine. It costs us over a dollar an ounce."

I think the prescription cost about \$1.40. It looked like water and glycerine, and tasted like water and glycerine. But I dropped it into my ears, snuffed it up my nose, etc., according to directions. It did not do my hearing a particle of good. May be it was due to a "lack of faith." But now listen. Our Ohio Agricultural Commission at Columbus sends out an official bulletin quarterly, I think. In their issue for August, page 113, they have taken up the business of exposing fraudulent medicines. I ran over it carefully to see if there was anything said about fluid enserol. Here is what I found:

Fluid En-Ser-Ol.—Composed of cinnamon water and boric acid.

The above gives us the clue to the whole scheme. The promoters of enserol leave it

at the drugstore. I presume if nobody calls for it the druggist is nothing out of pocket. If one *does* call for it, the price is to be what the druggist charged me. I am not reflecting on the druggist, mind you, unless it be that he should refuse to become a "fool" in the hands of such people. You see, after the expensive medicine is deposited at the drugstore these booklets are by some means scattered all over the land; and different people, as a matter of course, get hold of them and pass them out to deaf people. Our druggist informs me that he has quite a number of calls for it. In this official bulletin, about 70 similar remedies are mentioned, and sold, probably, like *enserol*. Read the following, clipped from the bulletin:

BUREAU OF DRUGS.

W. R. HOWER, Chief Drug Inspector.

WHAT'S IN A NAME?

Many drug preparations which are composed of common low-priced ingredients are sold in Ohio under distinctive names. For the benefit of the drug trade and the general public the Drug Bureau of this Commission has taken up and analyzed the following preparations:

May-a-Tone.—Composed of $\frac{1}{4}$ borax and $\frac{3}{4}$ epsom salts, perfumed and colored. Selling price 75 cents. Approximate cost 2 cents.

Sartoin.—A pink-colored powder consisting of $\frac{1}{4}$ boric acid and $\frac{3}{4}$ Epsom salts. Selling price 50 cts. Approximate cost 1 cent.

Citrox.—Composed of granulated sodium hyposulphite. Selling price 75 cts. Approximate cost $\frac{1}{2}$ ct.

Parnotis.—Composed of common baking-soda and dried glaubers salts. Selling price 50 cents. Approximate cost $\frac{1}{4}$ cent.

Amarol.—Composed of 1-10 borax and 9-10 Epsom salts. Selling price 75 cents. Approximate cost $\frac{1}{4}$ cent.

Cerol.—Consists of borax and stearic acid, perfumed. Selling price 75 cents. Approximate cost 2 cents.

Sanatogen.—Composed essentially of dried and powdered skim milk, known as casein, 80 per cent, and sodium glycerophosphate, 5 per cent.

The above preparations are fair samples of the class they represent. The manufacturer selects some very common drug or combination of drugs and gives it some fancy coined name. The drug laws of this State prohibit any statement, design, or device on a label that is false or misleading; and a close study of these packages or cartons will show that the manufacturer has in almost all instances successfully avoided any conflict with the law by failing to make any statement beyond the name of the article, the manufacturer's name, and directions for its use.

Gross misrepresentations are made in the newspaper advertising as to the articles' medicinal value, and very few of them have a value of over a few cents.

On the last page of this bulletin I extract once more as follows:

STOP! LOOK! LISTEN!

ADVERTISING FRAUDS TO BE EXPOSED.

Director Thorne, of the State Experiment Station, recently received a letter from a citizen of Ohio, asking that something be done to expose fraudulent advertising in some of the farm papers.

If any farm paper is advertising fraudulent wares or products, it is undoubtedly unaware of the fraud. If any frauds are being advertised, both the public and the editors of the papers ought to know it.

The *Official Bulletin* will publish any reliable evidence of fraud that may be furnished to the Agricultural Commission, Division of Agriculture, Columbus, Ohio.

Now will our people of Ohio "get busy" and report promptly any fraud they see advertised in our farm papers? I have had quite a little to say about the new remedy called *sanatogen*. Please note that this is included in the above bulletin.* I do not particularly mind, friends, the money I invested; but think of the pains I have taken, night and morning, for two weeks past, to go through with that *make-believe* woman's(?) instructions.

I have interviewed our druggist, who says boric acid is 5 cents an ounce, while fluid *enserol* is \$1.25 an ounce. Furthermore, he says there are doctors, quite a lot of them, who do most of their doctoring by giving their patients some of the 70 new-fangled remedies I have mentioned above. He has the same quarterly from which I have made some extracts. In fact, the State of Ohio has taken pains to put it in the hands of all druggists, so they may not be innocent in regard to what they are giving sick people. My good friends, there has been a lot said about the high cost of living; and a good brother has called our attention to "the high cost of dying." Shall we not also consider the high cost of getting sick? I might add that I am told that boric acid is a very good remedy for the eyes and ears; and so my treatment that cost ten times what it was worth will probably do no harm, even if it does no good.

REPELLENTS FOR PROTECTING ANIMALS FROM THE ATTACKS OF FLIES.

The above is the heading of a leaflet just received from the Department of Agriculture. With the crusade against the common house-fly, I think we have succeeded in establishing quite a victory over them already. In fact, we have had fewer flies this summer in our home, and even in the office, than I have ever known before. With this in view it seems quite proper that we should try to relieve the poor suffering horses and cattle, not only for humane reasons, but because it will pay in dollars and cents. We have used spraying solutions on our own horses and cattle quite a little already. There are two objections. The first is, that the virtues of the spray are soon gone. The second reason is, that the liquids on the

* While we are about it I want to say that the poultry remedies, at least the greater part of them, that are advertised and sold in immense quantities, are about on a par with the above report. You pay 25 or 50 cents for two or three cents' worth of medicine, and many times you do not get the medicine even then—that is, what is advertised as a remedy is little or no remedy at all. It is just "electro-poison" and "oxydonor" over again.

market are rather expensive, especially if one has to pay the express charges on a package.

This government leaflet speaks of these troubles, gives us something that costs but a trifle, and lasts something like a week. I am glad to see they recommend naphthalin flakes, which we have mentioned before on these pages. I feel quite sure the mixture will do the business.

This preparation is recommended after many exhaustive experiments with almost every thing else. Here it is:

Many of the substances such as pyrethrum powder, camphor, citronella, and sassafras, while tem-

porary repellents, lose their effectiveness very shortly. Ten-per-cent solutions of the liquids in cotton-seed oil, therefore, commonly have to be applied daily.

Various oils, emulsions of oils, and mixtures of oils are used in repelling flies. Crude petroleum, cotton-seed oil, fish or train oil, and light coal-tar oil, may be used pure.

Jensen (1909) recommends the following formula which is said to protect cows for a week:

Common laundry soap, 1 lb.; water, 4 gal.; crude petroleum, 1 gal.; powdered naphthalin, 4 oz.

Cut the soap into thin shavings and dissolve in water by the aid of heat. Dissolve the naphthalin in the crude oil; mix the two solutions; put them into an old dasher churn, and mix thoroughly for 15 minutes. The mixture should be applied once or twice a week with a brush. It must be stirred well before being used.

POULTRY DEPARTMENT

THE BUSY HEN.

A hen stood on the garden lot,
Whence all but her had fled,
And didn't leave a planted spot
In the early onion-bed.
With vim she worked, both feet and legs,
And the gardener says he bets
She was trying to find the kind of eggs
On which the onion sets.

When I found the above in the *Rural New-Yorker*, and concluded to give it to the readers of GLEANINGS, I could not quite decide whether it belonged in the Poultry Department or High-pressure Gardening; but I finally decided that it was rather more chickens than garden.

CHICKEN-MITES AND OTHER "VARMINTS."

Dear Mr. Root:—Don't feel too bad about those poor mites that were obliged to live on wood between chicken seasons. Wood is his native habitat, and chicken only an acquired taste. If you have never tried carbolinum for mites you have not found the easy way of abolishing them. One application a year to the perches and nests will keep them away, as they hate it as bad as or worse than you do rum. For body lice a little "blue ointment" or mercurial ointment (same stuff) about the size of a pea well rubbed against the flesh under the vent will keep Mrs. Hen free for six months to a year if no rooster is on the job to supply more. These two things make the vermin problem easy.

Cheshire, Ct., July 6.

F. M. PEASLEY.

CUTTING OFF THE SPURS.

In your June 1st issue, about cutting off spurs from fowls, we always trim them off. Sometimes they bleed freely. If they do, sear with hot iron the same as a cow's horn.

Bernalilla, N. M., June 14. F. E. FAIRCHILD.

ONE HUNDRED MILLION DOLLARS A YEAR LOST TO THE UNITED STATES BY BUGS.

When we spent our summers at the cabin in the woods I told you how I fell in love with the wild partridges. The partridges are near relatives of the quails, and I should

have had some tame partridges long ago were it not that I spend my summers in Ohio and winters in Florida; and when I move away who would take care of my quails or partridges? The following, which I just clipped from the *Chicago Advance*, has revived my craze for quail or partridges—both or either.

SAVE THE QUAIL.

Very seldom have we eaten quail on toast. In the first place, we have never felt sure that we knew how; in the second place, it seemed to us to cost the quail so much in proportion to the little good it did us, that we had some conscience about it. We shall now have other reasons. In the current issue of *Farm and Fireside* a contributor says that the chinch bug costs the farmers of the United States at least \$100,000,000 a year. Various means for fighting these bugs have been devised, but their most successful enemies are the birds of the air. In regard to the natural destroyers of this insect pest the author of the article writes as follows:

"If the law of the survival of the fittest applies in all cases, it is reasonable to believe that the ultimate check to the propagation of the chinch bug will come about by the birds that eat them at all stages of their life history. Among the birds that eat millions of these pests may be mentioned the quail, the meadow lark, and the sparrow.

"If the chinch bug is to be practically eradicated we must depend upon the efforts of the quail, as his home is in the brooding-grounds of the chinch bug. Nowadays things that are done have a certain degree of the idea of permanency about them, hence the first step in the permanent destruction of the chinch bug is a more complete protection of the quail that assists also in lowering the losses caused by the cotton weevil, the grasshopper, and the potato bug."

We much prefer quails to chinch bugs. The children of Israel ate quail. John the Baptist ate baked grasshoppers. The latter were quite as nutritious, and the farmers could spare them better than the quail. Besides, no one wants honey with quail.

I must confess I do not quite see where the honey comes in in the above pleasantries; but I presume it is because John the Baptist, during his ministry, ate locusts and wild honey.

A LAKE TRIP FOR REST AND RECREATION

Use D. & C. Line Steamers for Business and Pleasure Trips

THE refreshing lake breezes, the freedom of the decks and the luxurious comfort of the popular D. & C. Line steamers are waiting for you. Whether you go north to beautiful Mackinac Island, the famous summer resort of the North country, or choose the "Water Way" on your trip from the east or west, you will appreciate the many comforts on our palatial steamers.

Daily service between Detroit and Cleveland, and Detroit and Buffalo. Four trips weekly from Toledo and Detroit to Mackinac Island and way ports. Delightful day trips between Detroit and Cleveland during July and August. Popular week-end excursions every Saturday between Detroit and Buffalo, and Detroit and Cleveland. Special Steamer Cleveland to Mackinac Island direct, two trips weekly, June 25th to Sept. 10th, making no stops enroute except at Detroit every trip. Daily service between Toledo and Put-In-Bay, June 10th to September 10th.

YOUR RAILROAD TICKETS, reading between Detroit and Buffalo or Detroit and Cleveland are available for transportation on D. & C. steamers either direction.

AN INTERESTING PAMPHLET giving detailed description of various trips will be mailed you on receipt of two cents to pay postage. Address **L. G. Lewis, Genl. Passenger Agent, Detroit Mich.**

DETROIT & CLEVELAND NAVIGATION COMPANY

Philip H. McLaughlin, President. A. A. Schantz, Vice-Pres. and Genl. Mgr.

Steamers arrive and depart from foot of Third Street, Detroit, Mich.

THE COAST LINE TO MACKINAC

DETROIT, CLEVELAND
BUFFALO, NIAGARA FALLS



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Stamped on the
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of steel and
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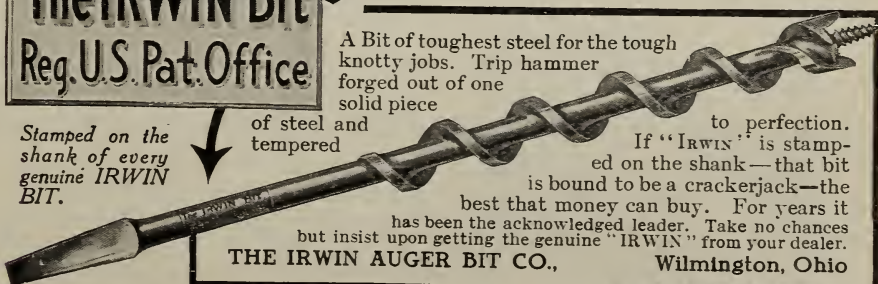
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If "IRWIN" is stamped
on the shank—that bit
is bound to be a crackerjack—the
best that money can buy. For years it
has been the acknowledged leader. Take no chances
but insist upon getting the genuine "IRWIN" from your dealer.

THE IRWIN AUGER BIT CO.,

Wilmington, Ohio



QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colony . . .	6.00	30.00		5.00	25.00	
10-frame colony . . .	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees . . .	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

**ALL ORDERS FILLED PROMPTLY
FROM NOW ON.**

Send for testimonials. Orders booked now.

H. G. Quirin - the - Queen - Breeder
BELLEVUE, OHIO

ITALIAN QUEENS!

Our Prices:

July, August, September

Prices:	1	6	12	25	100
Virgins	\$.50	\$2.75	\$5.00	\$9.50	\$35.00
Untested85	4.50	8.00	13.50	62.50
Select Untested . . .	1.00	5.00	9.00	17.00	65.00
WARRANTED	1.10	5.50	9.50	18.50	70.00
Tested	1.50	7.50	13.50	25.00	90.00
Tested Breeders . . .	3.00				
Sel. T'd Breeders . .	5.00				

Your choice of either Golden or leather-colored queens by return mail.

The A. I. Root Company purchase queens from us, and we refer you to their letter of endorsement below:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn., Miss.:

Replying to yours of Feb. 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries can not be made.

THE A. I. ROOT COMPANY,
by E. R. Root, Vice-pres.

Address Orders to

THE PENN CO., . PENN, MISS.

Queens by Return Mail.

SATISFACTION GUARANTEED.

F. J. Wardell, formerly head queen-breeder for The A. I. Root Company, is now prepared to furnish queens of his gentle stock. The bees are so gentle that their owner seldom needs a veil—just the thing for the beginners that are afraid of stings. The editor of GLEANINGS who saw these bees and handled them, says they are the gentlest bees he ever saw. They are bred direct from the Root \$200.00 queen.

PRICES:

Untested	\$1.00
Select Untested	1.25
Tested	2.00
Select Tested	3.00
Breeders	\$7.50 to \$10.00

Send all orders to

F. J. Wardell, Uhrichsville, Ohio.

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10.

Untested, after April 15, breeding queens, about fifty of the finest ready at any time: each, \$5.00.

W. H. LAWS, Beeville, Bee Co., Texas



GET YOUR QUEENS Direct from Italy

May to September. Tested, \$2.60; Champion Layers, \$4.00. Dead queens replaced if box is returned unopened. Discount to dealers or for quantities. Beautiful unsolicited testimonials. Honest dealing. For further particulars write to

MALAN BROTHERS

Queen-breeders

Lucerna, San Giavanna, Italy

Queens of MOORE'S STRAIN OF ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

Route 1, Morgan, Ky.

Queen-breeder

MILLER'S STRAIN ITALIAN QUEENS

By RETURN mail or money refunded. Bred from best RED-CLOVER strains in the U. S. In full colonies from my SUPERIOR BREEDERS; Northern bred for business; long-tongued; leather-colored or three-banded; gentle; winter well; hustlers; not inclined to swarm; roll honey in. One untested, 75c; 6, \$4.00; 12, \$7.50. One select untested, \$1.25; 6, \$5.00; 12, \$9.00. A specialist of 17 years' experience. Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PENNSYLVANIA

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, 75 cts.; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25 c.

E. E. MOTT, Glenwood, Mich.



FINE YELLOW ITALIAN QUEENS!

Tested, only 75c; extra-fine one, \$1.00; three-frame nuclei with tested queen, \$2.75; full stand, \$4.90, on Hoffman frames.

J. L. Fajen, Stover, Missouri

Queens - Queens

Bees by the Pound
and Full Colonies

From a superior strain of THREE-BANDED ITALIANS. . . Hardy, gentle, and they are hustlers. . . . Guaranteed to please you.

Send for My 1914 Descriptive Catalog

I have a large stock of modern BEE SUPPLIES always on hand. ROOT'S GOODS at factory schedule of prices, packed and delivered to my station. All orders will receive prompt and careful attention.

Earl M. Nichols, Lyonsville, Mass.

ITALIAN QUEENS

This is the first appearance of my ad. this season, though I have run nearly 600 nuclei—been filling many large orders for some of the largest beekeepers of the country, who know the worth of good queens. Prices: Untested, 75 cts each, \$4 25 for 6, \$8 00 for 12. . . . Satisfaction in all cases. Queens go by return mail.

L. H. ROBEY, WORTHINGTON, W. VA.

INCREASE YOUR HONEY CROP!

by introducing some of Leininger's strain of Italians Have been a breeder for 25 years. No better bees in America. Untested, 1, \$1 00; 6, \$5.00 Tested, 1, \$1.25; 6, \$6 00. Breeders, \$10 each. Every queen guaranteed. FRED LEININGER & SON, Delphos, Ohio

BEE SUPPLIES Send your name for new 1914 catalog out in January.

Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Ave., Kansas City, Mo.



BOOK ON Dog Diseases AND HOW TO FEED

Mailed Free to any address by the author

H. CLAY GLOVER, V. S.

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Deposit \$9⁴⁵ And Put This Stove in Your Home

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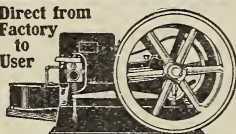
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2 H-P, \$39.45
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Stationary, (skidded or on iron base), and Mounted Styles, Standard the world over for 21 years. Better today than ever. Why pay double price for a good engine, or take a poor or doubtful one for any price, when the WITTE costs so little and saves all risk?

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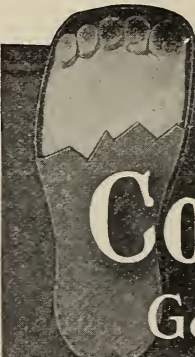
Direct from Factory to Users, for cash or on easy terms, at prices hitherto unheard of, for engines of these merits: Long-wearing, semi-steel, separable cylinders, and four-ring pistons; all vertical valves; automobile ignition; spark shift for easy starting; variable speed; and others, without which no engine can now be high-grade. I am simply sharing my manufacturing advantages with engine buyer-users—asking only one small factory profit.

New Book Free

The most easy-to-understand engine book in the business. Gives the "inside" of engine selling as well as manufacturing. Shows my liberal selling plans with complete price list. Write me your full address for my prompt reply.

Ed. H. Witte, Witte Iron Wks. Co.
1931 Oakland Ave., Kansas City, Mo.





THE Coward

Good Sense Shoe

Supports, protects and preserves growing feet; plenty of toe-room, snug about waist and heel. Straightens turned ankles, supports weak arches, prevents and corrects "flat-foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 34 Years.

FOR CHILDREN, WOMEN, AND MEN.
Send for Catalogue. Mail Orders Filled.
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STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—learn at home. You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by E. R. Root, the foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North or South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary, Writing for the Farm Press, Mushrooms, Ginseng, etc. Original and largest school devoted exclusively to teaching farming by mail. Write to-day for Free Booklet "How to Make the Farm Pay More," also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

American Farmers School, Minneapolis, Minn.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

HONEY LABELS.—Lowest prices. Catalog and price list free. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Orange honey; 120-lb. case, at 9 cts. Sample free. JAMES MCKEE, Riverside, Cal.

FOR SALE.—Extracted clover honey, quality A1. Price 10 cts. per lb. JOS. HANKE, Port Washington, Wis.

FOR SALE.—Comb and extracted honey. Tennessee smoked hams and bacon. Write for prices. J. E. HARRIS, Morristown, Tenn.

FOR SALE.—Finest orange and palmetto honey in new 60-lb. cans, 8 cts.; in barrels, 7 cts.; mangrove honey, 6 cts. ARTHUR E. AULT, Bradentown, Fla.

FOR SALE.—Light extracted in new 60-pound cans, 8½ cents per pound; in ten-case lots, 8 cents; dark amber, ½ cent less. H. G. QUIRIN, Bellevue, O.

FOR SALE.—Best quality white-clover extracted honey in 60-lb. cans. State how much you can use, and I will quote price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Light amber honey, 8½ cts. per lb. California sage honey 10 cts. per lb. Two 60-lb. cans to a case. Sample of either 10 cts. I. J. SPRINGHAM, 105 Park Place, New York.

FOR SALE.—Well-ripened clover and buckwheat extracted honey in 5-lb. pails and quart jars. Sample, 10 cts., which may apply on order. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz sections to case, 6 to 9 cases to carrier. Extracted, 120-lb. cases at 9 cts. WILEY A. LATSHAW, Clarion, Mich.

RASPBERRY HONEY FOR SALE.—Left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. Put up in new 60-lb. tin cans. Price \$6.00 a can. Sample by mail, 10 cts. Said 10 cts. may be applied on order for honey. ELMER HUTCHINSON, Rt. 2, Lake City, Mich.

FOR SALE.—An extra-fine quality of white extracted honey put up in new 60-lb. net tin cans, two in a case for shipment. Our crop of honey this year is a blend of about half each of clover and basswood, thoroughly cured on the hives by the bees before extracting. The fact is, not a single pound of the crop was extracted until some time after the close of the honey-flow. Rich, ripe rosy goods, worth twice as much as thin unripe honey extracted during the flow. For this exquisite stock we are asking ten cents per pound on car here. Do not be deceived by cheap unripe stock when a trifle more buys this superior white-clover-basswood blend that your customers will want more of from time to time. Ten yards. One thousand colonies. Liberal sample free. Address E. D. TOWNSEND & SONS, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—A few barrels of light-colored honey. Send sample, and lowest price delivered. A. F. BROWN, Virginia Hotel, Jacksonville, Fla.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

WANTED.—Buckwheat comb and extracted honey. Comb to be produced in standard sections, where fences or separators have been used. We prefer to have it packed in new shipping-cases of 24 sections each. All sections to be free from propolis, and well graded. Extracted to be heavy in body, of a good flavor, not mixed with other fall honey. We prefer it shipped in new 5-gallon cans or in small barrels. We want early shipments. State cash price for all grades delivered in Medina. THE A. I. ROOT CO

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekkeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

"Root" bee supplies and "American" honey-cans always on hand in carload lots. SUPERIOR HONEY CO., Ogden, Utah. (Branch at Idaho Falls, Ida.) Manufacturers of the celebrated "Weed Process" foundation. Highest prices paid for beeswax.

The Beekeepers' Review is now owned and published by the honey-producers themselves. It is the paper that all honey-producers should support. Eight months' trial subscription, beginning with the May number, for only 50 cts. Sample copy free. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

MISCELLANEOUS

You have been thinking for some time you would like to become a National Beekeepers' Association member. Now is your time. A year's dues to the National, and eight months' subscription to our own paper, the *Beekeepers' Review*, beginning with the May number, both for only a dollar. Address, with remittance,

THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—One breech-loading Winchester rifle, 32 caliber, cost \$13.00, good as new, 7¼ lbs.; one doubled-barreled shotgun, breech-loader, cost \$38.00, 9 lbs.; 12-gauge Remington Alton Arms Co., Ilion, N. Y., used but little, an excellent shooter, highly ornamented, \$12.00; one two-horse engine, steam, \$15.00; one two-horse boiler with fittings, \$25.00; one 2½ h. p. engine, cost \$75.00, used but little, \$30.00; Sean six-horse steam-boiler, new tubes, with fittings, cost \$80.00, \$45.00 takes it; one seven-shooter Smith & Wesson pistol, cost \$8.00, for \$4.00, 22 caliber; one automatic pistol, 38 cal., for \$2.50; five-shooter; 4-horse engine, \$40.00.

J. W. UTTER, Amity, Orange Co., N. Y.

BEES AND QUEENS

FOR SALE.—20 strong colonies bees, in 8-frame Langstroth hives, cheap.

WALTER J. D'ALLAIRD, Rt. 2, Scotia, N. Y.

Phelps' golden bees, \$2.00 per lb. Common bees from outwads, \$1.50 per lb.

C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—Cape Cod bees and queens. Young laying Italians. No disease. Try one.

O. F. SNOW, East Dennis, Mass.

Connecticut queens, three-banded Italians only; large and vigorous; ready May 15. Price list.

W. K. ROCKWELL, Bloomfield, Ct.

FOR SALE.—250 colonies bees, ten-frame, free from disease. Unlimited range. For particulars address G. W. ROBERTS, Manard, Texas.

FOR SALE.—180 colonies of bees and complete outfit. Excellent field and market. No disease. Write for particulars. ARTHUR E. AULT, Bradentown, Fla.

Untested three-banded Italian queens for the rest of the season in any quantity, 50c each. Safe arrival. W. J. FOREHAND, Rt. 2, Ft. Deposit, Ala.

Golden yellow Italian queens my specialty. Untested, 75 cts.; 3 for \$2.00; 6, \$3.75; 12, \$7.25; tested, \$1.50. Address E. A. SIMMONS, Greenville, Ala.

Golden and leather Italian queens, 100, \$60; 50, \$32.50; 12, \$8.25; 6, \$4.50; 1, 75 cts.; tested, \$1.50. BURDICK & MEEKER, Redlands, Cal.

Dunn's Golden Italian queens; booked full until March, 1915. L. J. DUNN, Queen-breeder, Rt. 6, Box 337, San Jose, Cal.

I will requeen and sell mismated Italian queens at 30 cts., and in June at 60 cts.

C. G. FENN, Washington, Ct.

FOR SALE.—140 hives of bees in 8 and 10 frame hives. Address

EUGENE E. FRASHER, Big Rapids, Mich.

Guaranteed purely mated select untested queens, same as advertised before, at 50 cts. each; queens by return mail. Tested, 75 cts. each; select tested, \$1.00 each. J. M. GINGERICH, Arthur, Ill.

Untested yellow Italian queens, each, 75 cts.; six, \$4.00. Bees gentle, prolific, hustlers, with good honey records. Ready to mail.

J. B. CASE, Port Orange, Fla.

FOR SALE.—Balance of season fine Golden Italian queens, \$1.60; 6 for \$3.50. Selected untested, \$1.00 each. Good honey-gatherers and healthy. Cash with order. EDW. A. REDDOUT, Box 43, Lysander, N. Y.

Northern-reared queens of Moore's strain of leather-colored three-banded Italians. After June 20, untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00.

RAMER & GLUEN, Harmony, Minn.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnetts, Va.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE FENN CO., Penn, Miss.

Now is a good time to requeen. Replace all old and inferior queens with young vigorous ones. We can furnish them by return mail. Tested, \$1.00 each; untested, 75 cts.; \$7.00 per doz. Three-banded Italians only. J. W. K. SHAW & CO., Loreauville, La.

FOR SALE.—50 or 100 colonies of Italians in 8-frame Root hives. No disease ever here. Good combs, and hives painted. G. A. BROWN, Russell, N. Y.

FOR SALE.—200 dandy young three-banded Italian queens, 50 cents each, during September.

J. H. HAUGHEY, Berrien Springs, Mich.

Doolittle & Clark's Italian queens. Safe delivery guaranteed in the United States and Canada. Breeders, \$2.50, \$5, and \$10; untested, \$9 per dozen. DOOLITTLE & CLARK, Marietta, Onondaga Co., N. Y.

QUEENS OF QUALITY.—Three-band leather color, remainder of season, untested, 50 cts. each; select untested, 60 cts. each. Satisfaction guaranteed.

J. I. BANKS, Liberty, Tenn.

Golden Italian queens, good layers and good honey-gatherers; tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00.

D. T. GASTER, Rt. 2, Randleman, N. C.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—20 colonies of bees in ten-frame Danz hives, at \$4.00 per colony. Extracting and comb-honey outfit, drawn combs, etc. S. MAZELLA GALLUP, North Family Shakers, Mt. Lebanon, Columbia Co., N. Y.

High-grade queens by return mail. Tested, \$1.25; warranted, 75 cts.; choice breeding queens, \$2.50; Italian, Carniolan, or Caucasian virgins of any of the above strains, 3 for \$1.00.

STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Fine Italian queens, 3-banded, bred for persistent profitable production of honey. Prolific, hardy, gentle. Orders filled promptly. \$1.00 each; 3 for \$2.75; 6 for \$5.00; dozen, \$9.00.

J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Italian untested queens by return mail. We guarantee our queens to satisfy you. No disease. They are bred for honey-producers. For the rest of the season they go at 50 cts. each, any number. If you are particular about your queens, we wish to supply you.

W. D. ACHORD, Fitzpatrick, Ala.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—We offer best Italian bees in ten-frame hives, from one to carload, f. o. b. here, or in yards of 100 or more complete with fixtures and location. Cash or reasonable time. If preferred, will rent on shares several years with privilege to buy. Particulars on request.

SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—2000 queens during Sept. and Oct. We are all up with our orders. Our fall honey has begun, which means perfect queens. For prices see our ad. elsewhere. All orders will be filled by return mail.

GARDEN CITY APIARIES CO.,
Rt. 3, San Jose, Cal.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$3.00 to \$5.00 each. For queens in larger quantities, write for prices and circulars.

ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Forty colonies bees, 8-frame Langstroth hives, well painted; no disease; nearly all young queens; plenty of stores; \$4.00 per colony, in any lot desired.
JOHN L. RANDALL,
512 16th St., Greeley, Colo.

FOR SALE.—About 175 colonies of bees, mostly Root and Moore strain in Quimby packing-cases, standard Hoffman frames, about 7 frames to the hive; young queens; no disease; hives in good condition. WILMER CLARK, Box 200, Earlville, Mad. Co., N. Y.

FOR SALE.—1000 colonies of bees in 10 apiaries, in the heart of Imperial Valley, where failure is unknown. Profits have averaged more than 100 per cent on investment for five years. Guaranteed free from disease. Will sell any number.
J. EDGAR ROSS, Brawley, Cal.

Bees with improved and unimproved land in never failing alfalfa and sweet-clover-seed raising locality. Bees with or without land, on easy payments; labor accepted as part payment; also bees in good isolated queen-rearing locality for early queens; can use a steady man.

OGDEN BEE AND HONEY Co., Ogden, Utah.

California Italian queens, goldens and three-banded, by return mail, select untested, one, \$1.00; 3, \$2.50; 12, \$8.00; tested, \$1.25. Bees by the pound a specialty. One 1-lb., \$1.25; one 2-lb., \$2.25. Safe arrival and satisfaction guaranteed. Correspondence invited. Circular free.
J. E. WING,
155 Schiele Ave., San Jose, Cal.

Golden and three-banded Italians. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60; tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY Co., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Our three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, \$1.25; warranted, 75 cts.; untested, 50 cts.; select untested, 60 cts. Queens are ready by return mail. Satisfaction and safe arrival guaranteed. No disease. For large quantities write for wholesale prices.
BROWN & BERRY, Hayneville, Ala.

SPECIAL ON QUEENS.—Choice untested Italian queens, rest of the season, 60 cts. each. This offer is good to both old and new customers. The fall honey-flow was favorable to rearing a nice lot of queens, and this is your chance to get some of them at lowest prices. With one of these queens in the hive the European war will not affect your honey crop next year. Safe arrival and satisfaction guaranteed. A tested queen will be given in place of an untested queen with each order for a dozen queens.
J. B. HOLLOPETER, Pentz, Pa.

REAL ESTATE

FOR SALE.—Half-interest in the bee business in the clover and buckwheat section of New York. This is a good opportunity for an honest young man to start in the business on an extensive scale at a bargain.
M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

Virginia fertile farms, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt., Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

HELP WANTED

WANTED.—Beekeeper, married, to run apiary on shares. Owner is absent. Must furnish at least twenty-five colonies himself or \$100 in cash to guarantee good faith. Fine location. Good home and garden furnished. Give full particulars of yourself in first letter. Address HERMAN GUSE, Sheboygan Falls, Wis.

SITUATION WANTED

WANTED.—Position in apiary. Inexperienced; willing to learn. HOBBART JONES, Darien, Ct.

WANTED.—A sober young man who has had experience, a position in a beeyard for the season of 1915.
ALEX. ELWOOD, Walton, N. Y.

Practical beekeeper, married, no children, wants position in apiary. Will consider either wages or share proposition.
H. H. CONLEY,
1926 Denver St., Covington, Ky.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1. \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Convention Notices

The eighth annual meeting of the Adirondack Beekeepers' Association, New York State branch of the National Beekeepers' Association, will be held on Sept. 25, 1914, at Fort Ann, N. Y. The meeting will be held in the form of a basket picnic and field meeting with E. H. Sturtevant, one of the veterans, and the most extensive beekeeper in northeastern New York. Brother Sturtevant knows how to talk bees, and has had some experience in writing for journals on the subject. He has not as yet had foul brood in his yards, and I think a demonstration from him of his prevention of it will be of interest. This, together with the president's annual address and other volunteers, will make it with while to attend. Do not forget to bring the ladies.

SECRETARY.

EXHIBITS AT THE LOUISIANA STATE FAIR.

The newly organized Louisiana State Beekeepers' Association will meet on Monday, Nov. 9, at 10 o'clock, for the purpose of transacting any business that may properly come before the body. It is earnestly desired that every one interested in bees be present. An endeavor is being made to secure good speakers to make talks on bee culture.

Those wishing to make exhibits at the fair should take up the matter at once with Mr. Louis N. Brueggerhoff, Secretary of the Fair, Box 1100, Shreveport, La.

Any one desiring to become a member of the Association may do so by sending his dues to L. T. Rogers, Box 361, Shreveport, La. Dues are \$1.00 a year for the National and 50 cents a year for the State. National members will receive free the *Beekeepers' Review*, official paper of the National Association. Bee-keepers may belong to the State Association and not to the National, if desired.

G. FRANK PEASE, President,
L. T. ROGERS, Secretary-Treasurer.

A KIND WORD FROM TROUBLED MEXICO.

I have forgotten to thank you for the 19 copies of *GLEANINGS* that came through all in a batch by the first mail that arrived from Alamos for over two years, although only a day and a half distant.

Please permit me to request the favor of expressing over my name my most sincere gratitude to Mr. A. I. Root for the spiritual good he has done for me, until at last I have said his "Help, Lord," and am convinced, even in little things, that I have received his help. God bless him. I hope he may be spared to continue Our Homes.

Chinipas, Mex., April 29. FRANK W. BREACH.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

SWEET-CLOVER SEED.

We should like to hear from those who have gathered sweet-clover seed for which they have not yet found a market. Mail sample of the seed, and write stating how much you can furnish, and the price asked. Hulled white is the kind most in demand.

BEEWAX MARKET.

Arrivals of beeswax shipments from the West Indies, which have usually gone to Europe, are further depressing the market price. Low grades of imported wax are being offered at very low prices. Market price of domestic wax is holding up very well in spite of the disturbing element from abroad. We continue to pay 31 cts. cash, 34 in trade, delivered here, for good average wax.

SPECIAL NOTICES

BY A. I. ROOT

BORAX AS AN AID TO BATHING.

In my Health Notes for last issue I omitted mentioning that every Saturday night I use a very little powdered borax together with the soap. The borax greatly aids, especially in cleaning the feet very thoroughly. You can see the effect by noticing the additional matter that is left in the water, contrasted with using soap alone.

GOOD BOOKS, ETC.; "DO GOOD AND LEND."

I always enjoy furnishing good books at low prices—not because of the money we get out of them, but because of the *good* the books do. May be that is saying a great deal, but I really believe I am honest about it. In an endeavor to prove to you that I am honest, I am going to offer that beautiful little book, "The Saloon Fight at Berne, Ind.," free of charge if you will send 10 cents to pay the average postage. On page 20 of the advertising department of our July 1st issue I gave it a good write-up, offering the book at cost. But the 100 copies, that cost me \$25, do not seem to go off very fast, and I am particularly anxious that the book should be read by the people before the November election; therefore you may have the book free of charge if you will pay the transportation. If you are ordering goods by freight or express we will put in a copy free of charge; and if you will read it all through—and I am sure you will if you once make a start—and then lend it to your neighbors ("do good and lend") right and left, I shall get my pay, even if I do not get it back in dollars and cents. May God bless the little book that tells so plainly how to "love your enemies and do good to them that hate you."

While I am about it I want to say that we also purchased 100 copies of the book "Pollyanna." These are all sold; and as applications are still coming in, and we have ordered another lot, I hope the dear friends will lend this good book too, right and left, to everybody who will read it.

DASHEEN TUBERS FOR PREMIUMS NEXT YEAR.

As I said on page 611, Aug. 1, I am planning to give every subscriber who cares for them a 1-lb. package of dasheen tubers if he pays the postage. Now, in order to do this, and save me unnecessary labor in our Florida home, we will have addressed envelopes prepared here in Medina. These envelopes will then be forwarded to me at Bradentown, Fla., where I will put in the tubers and mail them to destination. To avoid danger of freezing where they are to sent up north, we will not, as a rule, mail them until about March 1. For all southern points, or for those who want to start them in window-boxes or in a greenhouse in the North, they will be mailed whenever you prefer to get them. In view of the above, those who want the tubers should comply with the following:

1. See that your subscription is paid up one year or more.
2. Ask your postmaster what the postage will be from Bradentown, Fla., to your place.
3. State when you prefer to have them mailed, and enclose the amount of postage when you send in your application.
4. Mail all requests for tubers to Medina, Ohio. This will enable any of our clerks here to mail me the addressed and stamped envelopes. All I shall have to do then will be to put in the tubers. We probably shall not be able to send out any tubers before December; for I shall have to harvest my crop and get them dried off a little so as to save postage. Applications should all get in before May 1, 1915.

THE DASHEEN AND FEIJOA; SOMETHING FROM THE DEPARTMENT OF AGRICULTURE.

Dear Mr. Root:—I have just looked over the copy of GLEANINGS for August 1, and have been much interested in the reference to the dasheen and the feijoa. In regard to the Department's distribution of the dasheen, we shall be glad if you will state that applications should be addressed to the Department of Agriculture, Washington, D. C., rather than to our station at Brooksville. We do not keep a clerical force at Brooksville, and all communications addressed there are referred to this office.

In reference to the feijoa, you will, perhaps, be interested to know that the Department received fruits grown in Florida as long ago as 1910. The feijoa has not thus far matured its fruit satisfactorily in Florida, however, and none of the specimens we have had from that part of the country have been fit to eat. It does not follow, of course, that the feijoa will never be raised satisfactorily as a fruit plant in Florida, though that is at present the outlook. The climate of California, particularly the southern part, appears to be well adapted to the culture of this fruit, and the quality there is generally excellent.

R. A. YOUNG, Botanical Assistant.

Washington, D. C., Aug. 18.

I confess the above is a little bit of damper on the feijoa; but, notwithstanding, I shall take great care of the little tree. The beautiful flowers, different from any thing else, are worth all it costs, even if the fruit does not mature. Some one has suggested that, like certain pears, the fruit should be gathered and allowed to ripen indoors.

Will all those who would like dasheens from the Government please remember to put in their application as above?

ANOTHER VICTORY.

Without doubt GLEANINGS will be glad to record the fact that saloons in Ft. Smith closed August 1. The strongest argument against closing them was but a question of money, and the majority here refused to bow down to the golden image.

While the writer does not use intoxicants, his other faults would not allow him to scorn any who do; and his fight is not against the user but the liquor. It is, also, true that Christians cannot be made by enforcement, nor would be acceptable if they could. Still, it would seem better to put away temptation as far as possible; and the real question is, if "His will" is to be done *here*, are there saloons in heaven?

Ft. Smith, Ark., Aug. 14.

L. E. KERR.

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